



New Horizons

Newcomers Work Hard
Government In Labor,
And Vice Versa
How's That Again?
Glossary of Australian
Slang Expressions

New Horizons

Here are two salient facts about present-day Australia:

1. American firms have invested more than \$650,000,000 in Australia in recent years.

2. Nearly 1,300,000 immigrants have entered Australia's labor force since World War II. (Total population: 9,400,000!)

Both of these facts are changing the nature and the complexion of this Continent With a Future. Both reflect an about-face from previous policy and attitudes. Both resulted from the World War II Japanese invasion threat.

Prior to that fright Australia was oriented toward "the mother country" (Britain). And almost the only immigrants allowed in—a mere trickle—were Britishers.

It wasn't Great Britain which sent armies, ships, and air forces to Australia in its hour of need, however. It was America. And we've been growing closer and closer to them ever since.

Today America and Australia are business partners, and together are looking ahead to new horizons and mutual prosperity.

Newcomers Work Hard

Realizing that they needed many more able-bodied citizens to defend themselves from the hungry "yellow hordes" to the East, Australians have opened the doors to immigration from all Europe.

Italians and Greeks—hundreds of thousands of them—have taken advantage of this opportunity. Likewise, Hungarians, Germans, Poles, Austrians, and Dutchmen. And quite a few Americans.

These newcomers are hard workers. They're lean and ambitious and grateful. As a result, they've boosted Australia's economy with their productivity.

In many cases they've joined with American Capital investment to provide entire new manufacturing industries. Result: a boom.

Government In Labor, And Vice Versa

Australia provides an interesting case history of what can (Concluded on Page 14, Col. 1)

Western, Australian Shows Pack 'Em In

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CRMA MEETING AGREES

'No Reason To Alter Present Methods of Doing Business'

FORT WAYNE, Ind.—Commercial refrigerator manufacturers view the present economic scene with "modified optimism" and see no reason to alter established methods of doing business.

That was the consensus of panel discussions held during the annual spring meeting of the Commercial Refrigerator Manufacturers Association here recently.

Dunham-Bush Will Move Sheet Metal, Coil Making

WEST HARTFORD, Conn.—Cecil Boling, president of Dunham-Bush, Inc., has revealed plans to shift all production which consists of sheet metal forming and coil fabricating operations from West Hartford to the Dunham-Bush plant in Michigan City, Ind.

This move is to begin immediately and is expected to require about six weeks. At that time, the company's present operations in Utica, N. Y., will be transferred into the West Hartford plant. The change, which will be completed by July 15, will bring the manufacture of all Dunham-Bush air compressors and open-type condensing (Concluded on Page 33, Col. 3)

NWAHACA OFFERS POLICY

What Should 'Ready To Add Cooling' Mean?

CLEVELAND—A suggested policy as to what characteristics of a warm air heating system should be considered essential in order to properly identify that system as "Ready for the Addition of Cooling" has been recently issued by the National Warm Air Heating & Air Conditioning Association.

Prepared at the request of FHA, by a special committee of the association with FHA representation and approved by the association's Board of Trustees, this suggested policy has been submitted to FHA for its consideration as a means of evalu-

ating when a house and system may truly be considered as being "Ready for the Addition of Cooling."

The proposed policy is as follows:

A. Structure and Air Distribution System.

1. The room-by-room heat gain shall be calculated for the structure as submitted in accordance with the "Heating, Ventilating, and Air Conditioning Guide," Manual 11 of the National Warm Air Heating & Air Conditioning Association, or the appropriate standards of the

See Far West as Major Market

By Phil B. Redeker

LOS ANGELES—Members of all segments of the industry, and some major users of equipment as well, poured into the 2nd Western Air Conditioning, Heating, Ventilating and Refrigeration Exhibit and Conference here to surpass last year's attendance by a goodly margin, and to demonstrate that the Far West is taking its place

More detailed coverage on the Western Industries Exhibit and Conference will be published in later issues of the NEWS.

as a major market for the industry's equipment.

In fact, those representatives from the Los Angeles area,

which has now taken second place in retail sales among all areas in the nation, believe that before long the southern California area will represent the No. 1 area for air conditioning and refrigeration equipment sales.

The attendance of some 7,000 members of the industry who entered the Shrine Exposition hall day and night saw the exhibits of more than 150 makes (Concluded on Page 6, Col. 3)

Australia Shows It's Growing Too

By George F. Taubeneck

SYDNEY, N.S.W.—Amidst "old world" pomp and ceremony, the first international convention and exhibition of the Australian Institute of Refrigeration played to packed houses here May 6-10.

The ceremonies were the only thing "old world" about it, however. This is a nation definitely on the march, eager to grow and expand, and closely allied to the American refrigeration industry.

Australia is a land with a tremendous future. It is larger in area than continental United States, with a population of less than 10 million! Immigrants are pouring into it from England and Europe . . . vigorous, hard-working immigrants, and American capital is pouring into it, also.

Australia has become the sec-

Gray Chairman, Brooker President of Whirlpool

ST. JOSEPH, Mich.—Elevation of Elisha Gray II to chairman of the board of Whirlpool Corp. and election of Robert E. Brooker, formerly a vice president of Sears Roebuck & Co., as president was announced by Whirlpool Corp. recently.

Gray remains as chief executive (Concluded on Page 33, Col. 3)

ond largest manufacturer of refrigeration and air conditioning equipment in the world.

An American walking through the handsome Exhibition (managed by the Industrial Public Relations Service) would feel right at home. Practically every (Concluded on Page 26, Col. 1)

120 To Exhibit at Oil Heat, Cooling Show June 9-12

NEW YORK CITY—Attention of the oil heating industry will be focused here June 9 to 12 for the 22nd National Oil Heat and Air Conditioning exposition and the 36th annual convention of Oil-Heat Institute of America.

Nearly 120 exhibitors will have space in the exposition, to be staged in the Coliseum here, displaying products and services for residential, commercial, and industrial applications.

The show will be open from 1 to 10 p.m. Monday through Thursday, June 9 to 12. Admission is free to members of the industry and allied interests, but registration will be required.

Special attractions of the exposition will include regular showings of sound-slide service films in an auditorium on the mezzanine floor and a display of new consumer advertising.

All activities of the OHI convention will be centered at the Park Sheraton hotel. General convention chairman is K. L. Wilson, vice president, Minneapolis-Honeywell Regulator Co.

Convention program includes annual meetings of OHI sections, a technical symposium, dealer management clinics, and an invitational commercial-industrial conference on "Prepa- (Concluded on Back Page, Col. 1)

Contractor-Union Committee Seeks Ways To Boost Industry

WASHINGTON, D. C. — A study of ways and means to convince building owners, architects, and engineers that they can gain considerable advantage by using materials and services of members of the plumbing and pipe fitting industry for heating, air conditioning, and refrigeration installations, among others, was authorized by the newly-formed Joint Industry Program Committee.

The committee is comprised of representatives of the National Association of Plumbing Contractors, Mechanical Contractors Association of America, and the United Association of Journeymen and Apprentices of the Plumbing and Pipe-Fitting Industry (AFL-CIO).

The Joint Industry Program Committee instructed the staff of the three cooperating organizations to "review and revise" promotion techniques developed by the former National Trade Promotion Committee of the industry, which went out of existence in 1951.

The JIPC, organized early this year to work for mutual benefits for workers and contractors from labor-management cooperation, also dealt at its first meeting with jurisdictional problems with relation to temporary heating installations.

It ruled that if any group encounters cases where other crafts try to interfere with the jurisdiction awarded to the

United Association in 1924, such cases should be submitted promptly to the National Joint Board for Settlement of Jurisdictional Disputes.

It was also decided that a special committee of five representatives of the UA and five others representing the two contractors' organizations should study the problem of amending and bringing up to date rules covering installation and operation of temporary heating and cooling systems, used while a building is under construction.

William C. O'Neill, newly-elected general secretary-treasurer of the United Association, was chosen to serve as co-secretary of the JIPC, along with Jerome O. Hendrickson, of the NAPC and L. B. Gruman, Jr., of the MCAA. The next meeting of the JIPC was scheduled for July 28 in the UA building here.

Imports Force Revere To Trim Price 10% on Copper Water Tube

NEW YORK CITY — Revere Copper & Brass, Inc. announced it is cutting prices for copper water tubes because of increased imports at quotations "sharply below" U.S. prices.

Revere's price cut amounts to 10% for types L and M 1/2 and 3/4-in. copper water tubes. New prices for L-type tubes are 16.46 cents a foot for 1/2-in. and 23.66 cents a foot for the 3/4-in. tube. New quotations for M-type tube are 12.96 cents a foot for 1/2-in. and 18.22 cents for 3/4-in., according to the announcement.

Copper water tubes are used for plumbing, heating, refrigeration, air conditioning, industrial chemical and processing, steam condensers, and heat exchangers.

5 Mo. Strike Ends At Punxsutawney

PUNXSUTAWNEY, Pa. — After nearly five months of work stoppage, the Punxsutawney Co. has signed its second contract with the International Union of Electrical, Radio, and Machine Workers and has resumed operation.

The company announced that terms of the new pact were substantially the same as those proposed by the company before the strike started.

The new contract calls for a 5 cents per hour increase effective as workers are called back with another 5 cents per hour jump on Nov. 1. The contract is scheduled to run until Oct. 31, 1959.

Herman L. Buffington, president of the company, added that the Beverage-Air Co., which manufactures the same line of beverage cooling equipment in Spartanburg, S. C., started production in late February and is at the present time in full operation.

March Cooler Sales Spurt In St. Louis

ST. LOUIS — Air conditioner shipments by certain distributors to dealers in the area served by Union Electric Co. in March jumped 7.4% over sales for the same 1957 month, and zoomed 55.1% over those of February, 1958.

However, shipments for the first three months of this year slumped 11.3% from the like 1957 period with 5,280 in 1958 and 5,950 last year.

Distributors moved 2,189 1-hp. and over air conditioners during March added to the 597 of 3/4-hp. and under for a total of 2,786.

There were 1,509 1-hp. and over sold during March, 1957 and 1,085 of 3/4-hp. and under for a total of 2,594.

In February of this year there were 1,293 1-hp. and over units moved along with 503 of 3/4-hp. and under for a total of 1,796.

Charlottesville Throttles Water Tap

CHARLOTTESVILLE, Va. — Air conditioning units, or collections of air conditioning units, which use more than 7 g.p.m. of city water are now required to use a water-saving device, the city of Charlottesville has decreed.

Along with this regulation, which became effective April 21, the city passed ordinances requiring permits for air conditioning installations and separate circuits for units rated at more than 7 amperes.

Reduce Costs By Using New, More Powerful Shaded Pole Motors In Your Appliances



Redmond
TYPE AY TRI-FLUX
SHADED POLE MICROMOTORS

Redmond's New Design Greatly Increases Shaded Pole Motor Application

Now you can reduce costs by using the powerful new Redmond Tri-Flux® shaded pole motor in applications that formerly required more costly general purpose motors.

Redmond's patented Tri-Flux design adds a third flux path with a "reluctance notch" in the leading pole tip making possible a larger diameter shaded pole motor that is more efficient and has higher starting and running torques than conventional shaded pole motors. It is this exclusive Redmond feature that makes your shaded pole motor powerful enough to replace the more costly types you may now be using and which may be over-motoring your product.

The basic AY shaded pole MicroMotor pictured above is available in both 4 and 6-pole designs, ranging through 1/3 horsepower in many applications. It can also be modified readily and economically to fit your exact specifications for both mechanical and fan duty requirements.

The Redmond type AY Tri-Flux shaded pole

motor is a quality product yet it is still the most economical style motor available when properly applied and tailor-made to fit your requirements. Designed and developed by the Redmond Company, millions of these motors are now in operation in a multitude of air-conditioning, refrigeration, heating and ventilating applications where years of trouble-free service and whisper-quiet operation is essential. The Redmond Company has been a specialist in the design and production of shaded pole and fraction horsepower motors for more than a generation and have produced well over 70,000,000 motors during this period and is considered a leader in its field. Redmond motors are constructed with UL and CSA approved materials and methods and you may be assured that production motors will maintain the same high quality-precise specifications found in hand made test samples.

Redmond sales engineers are skilled technicians whose primary function is applying a motor to your production. Call us today to help you with your cost reducing program.

HAVE YOU INVESTIGATED THE LATEST DEVELOPMENTS IN MOTORS?

Redmond engineers want to help you adapt these motors to your specific needs. Contact us at Owosso, Michigan, and we will have the Redmond sales engineer in your district call you at once.



Thinking of —

- changing territories
- expanding your territory
- taking on new lines —

Check the
CLASSIFIED ADS

Your opportunity may
be there.

For fast sales leads, Airtemp outlets are listed individually in this giant fold-out ad in the June issue of *Holiday*. Three pages in full color, plus two additional columns, make this one of the largest air conditioning ads ever run in a high-circulation quality magazine.

HOLIDAY

Enjoy Holiday Living at Home all year with Chrysler's Airtemp "Controlled Climate"

Holiday Living at Home with Airtemp Air Conditioning

Check the List below or see the Yellow Pages

CHRYSLER

Airtemp

★ "dealer-centered" advertising

**gives you
immediate**

sales

increases!

Airtemp ads are *action* ads! They have one main goal—to bring "live" prospects to *you*. Coupons, "where-to-buy" listings, action appeals bring you a steady flow of sales leads. That's why Airtemp dealers get *fast* results from every Airtemp advertising campaign.

Here are some other reasons why dealers make more money with an Airtemp franchise—

- The Airtemp line is complete—really complete—with 297 cooling and heating models. Dealers

can satisfy *any* cooling or heating need.

- They sell the Chrysler name and Chrysler's famous engineering.
- Airtemp dealers *keep* their initial sale profits because they have fewer customer complaints and service calls.
- Special training for dealers and their personnel at Chrysler Corporation Service Centers.
- Factory advertising in your local markets.

CHRYSLER



Airtemp

**AIRTEMP DIVISION, CHRYSLER CORP.
DEPT. AC 5-58, DAYTON 1, OHIO**

Please send me full information on an Airtemp franchise.

NAME.....

ADDRESS.....

CITY.....ZONE.....STATE.....

Revco Sued

J. M. Oberc Asks 'Fair, Reasonable' Value for Combination Unit Idea

ADRIAN, Mich.—J. M. Oberc, refrigeration and air conditioning equipment wholesaler and appliance distributor in Detroit, has filed suit against Revco, Inc. of Deerfield, Mich., refrigerator and freezer manufacturer, in Lenawee circuit court here.

Oberc claims that he conceived the idea for a combination freezer and refrigerator that Revco made and continues to produce and market as the Revco Built-in refrigerator and freezer.

He charges that Revco has failed to compensate him for the "fair and reasonable value of his services." He asks for a judgment against the manufacturer.

Oberc, in his suit, which was filed by the law firm of Foster, Meadows, & Ballard of Detroit, asserts that in 1953, he was approached by officers of Revco with a proposal to manufacture the combination unit for the mutual profit of the firm and Oberc.

He says he agreed and submitted his sketches and designs to Revco. He added that he worked and consulted with Revco engineers and officers on design, distribution, and sales of the unit.

Shortly after his attorneys filed the suit, Oberc entered the hospital for surgery. He is expected to be confined for several weeks.

Asked for comment, George

Bushnell of Miller, Canfield, Paddock & Stone, representing Revco in the matter, said that as yet Revco has no suit.

He explained that Oberc's attorney has not submitted a bill of particulars outlining how much Oberc is claiming his services are worth and what actual services he performed.

"Until we get this bill of particulars," he said, "we don't know how much he wants or why. We don't know what his contributions were. Unfortunately, the man Oberc dealt with at Revco died about five months ago. His correspondence file refers to telephone conversations with Oberc but does not say specifically what was discussed."

Guaranty Service Moves

NEWARK, N. J.—Guaranty Service, Inc., formerly located in Orange, N. J., has moved to 605 Springfield Ave. here.

Air Conditioning's Benefits

Utilities, Newspapers, Distributors Open Drives Coast-to-Coast To Tell People

DETROIT—Summer's coming—and utilities, newspapers, and distributors from Providence to San Diego are unlimbering campaigns to "wake the town and tell the people" about air conditioning.

BOOKS PROMOTION 2 SOLID MONTHS

Nashville Electric Service, for instance, has booked two solid months of air conditioning promotion starting now. Bill stuffers, billboards, bus cards, radio, window display, floor display, and newspapers will all carry the message "Be Cool, Air Condition Electrically."

In its newspaper campaign from May 20 to July 19, the utility will run advertising on

room air conditioners every other week. Alternating weeks will promote heat pumps and central air conditioning.

West Penn Power Co., operating in the southwestern Pennsylvania territory, will feature room air conditioning in its newspaper ads, radio spot announcements, direct mail, and displays during May and June.

Advertising will use the slogan, "For real summer comfort get a triple-duty room air conditioner (cools, heats, ventilates)."

The Cincinnati Gas & Electric Co. will start promotion of air conditioners and fans on June 2, carrying on through July 18. On June 10, it will cooperate with the Cincinnati Enquirer in a special section devoted to air conditioning units and fans.

AD RUNS WHEN 85° TEMPERATURE HITS

Along the same line, the St. Louis Globe-Democrat has come up with a little different approach. The newspaper has offered to publish a special air conditioning section with a Sunday paper in May to run only if the temperature on the Friday preceding exceeds 85° F.

If the temperature fails to reach that mark, the section would run later only after the temperature hit 85° F. for two days in a row.

The Electric Institute of Washington has already sent out 300,000 bill stuffers in which "Dr. Reddy Kilowatt" prescribes "Air conditioning—take day and night."

Inviting the public to see the utility's floor display of cooling equipment, it advises "cost of operation is agreeably small at Pepco's low electric rates."

The Rochester (N. Y.) Gas & Electric Co. has already launched a promotional campaign to "condition prospects for air conditioning." The effort will continue through June.

In San Diego, the Bureau of Home Appliances opens its air conditioner promotion on TV May 22, 26, and 30. It will continue during June.

TO HELP DEALERS CUT CARRYOVER

In Providence, 15 distributor members of the Electrical League of Rhode Island are currently conducting a newspaper advertising campaign to help dealers clean up their carryover from last year as well as capture business with new models.

After promoting electric heat pump sales during May, the Virginia Electric and Power Co. is scheduling newspaper advertisements during the first two weeks of June. Both the heat pump and air conditioning advertisements feature a "Mrs. Modern." Copy suggests that if the reader wants to live like "Mrs. M," they need air conditioning.

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich. Only 25¢ each.

GET MORE BUSINESS FROM EVERY BUSINESS



with GENERAL ELECTRIC'S Complete Air Conditioning Line

Stores, offices, office buildings, factories—large buildings and small ones—old buildings and new ones! Every business is a prospect for General Electric Commercial and Industrial Air Conditioning because the G.E. line is complete—and flexible.

G.E. Zone-by-Zone Concept Gives You Big Sales Advantages

General Electric's Zone-by-Zone concept puts you way ahead in selling points over field-assembled systems. *Planning is simplified*—no need for equipment rooms—minimum need for fittings and piping—no long duct runs—maximum saving in floor space. *Economies are substantial*—no major alterations or serious interruption to business during installation—no shutdown of entire system for maintenance, units are individually serviced—no heavy initial outlay—financing to meet individual budgets.

Chart Your Progress With G.E.'s Blueprint For Leadership

A complete line of quality products is only the beginning! General Electric's BLUEPRINT FOR LEADERSHIP Plan gives you much more! Attractive financing plans—for you—for your customers! A course in selling—national advertising and promotion—guided local advertising and promotion—plus the selling power of the General Electric name. Every-

thing it takes to assure the leadership position for General Electric dealers. Why not plan your future with G.E.? Contact your nearest General Electric distributor—you'll find him listed in the yellow pages of your telephone directory...or mail coupon today. General Electric Company, Air Conditioning Department, 5 Lawrence Street, Bloomfield, N. J.

Progress Is Our Most Important Product

GENERAL ELECTRIC

In Canada, Canadian General Electric Co., Ltd., Montreal

General Electric Company
Air Conditioning Dept.
5 Lawrence Street, Bloomfield, N. J.
I am interested in signing up with General Electric so that I can benefit from G.E.'s Blueprint for Leadership Plan.

ACD9

Name _____
Firm _____
Address _____
City _____ Zone _____ State _____



AIR-COOLED CEILING-MOUNTED SPLIT SYSTEMS. Remote condensing unit may be placed anywhere, indoors or outdoors. Capacities 3 to 10 tons.



SELF-CONTAINED CEILING-MOUNTED UNITS—Air- and water-cooled 3 to 7½ tons.



FLOOR-MOUNTED UNITS—Water-cooled, self-contained 3 to 30 tons—air-cooled split systems 10 to 20 tons. Heating coils may be added. All units covered by General Electric's 5-year warranty on sealed motor-compressor.

Grand Central City To Rival Pentagon In Air Conditioning

NEW YORK CITY—More than 3 million sq. ft. of air conditioned floor space will be contained in a 50-story, \$100 million office building to be erected adjoining Grand Central Terminal here.

Air conditioning plant for the skyscraper will have cooling capacity of more than 10,000 tons.

To be known as "Grand Central City," the huge structure will be the world's largest commercial office building, and second only to the Pentagon in Washington, D. C. as the largest office structure anywhere.

New building will occupy the 132,000-sq. ft. plot fronting 390 ft. on Vanderbilt Ave. and 340 ft. on E. 45th St. Terminal concourse will bound it on the south, Depew Pl. on the east.

Grand Central Terminal Office Bldg., now standing on the site, will be demolished. Projected building completion date is 1961.

First seven floors of the proposed structure will contain 110,000 sq. ft. of space each. Floors 8 through 15 will have 75,000 sq. ft. each. The next 30 stories, to the 45th, will each contain 50,000 sq. ft. Upper five floors will be of 35,000 sq. ft. each.

2,190 Induction Units In Minneapolis Bank

HARRISON, N. J.—Worthington Corp. has provided 2,190 of its "Flexular Series" induction circulators for the new fully air conditioned First National Bank of Minneapolis, it was announced recently.

The 28-story building is said to be the largest project of its kind to be constructed in Minneapolis in the last 25 years. It is also one of the largest installations using Worthington induction circulators.

The air conditioning equipment, elevator penthouse, and other installations usually at roof-top level will be enclosed in the 27th and 28th stories.

Completion has been set for early in 1960. Architects and engineers are Holabird & Root & Burgee, Chicago, and Thorskov & Cerney, Minneapolis; mechanical contractor is Commercial Air Conditioning Co. of Minneapolis.

Lima Register Grows

LIMA, Ohio—A new plant addition, to be completed by the end of June, will increase the production and storage space of the Lima Register Co.

U.L. & A.S.M.E. WATER-COOLED CONDENSERS 1/2 TON TO 15 TONS
and
LIQUID RECEIVERS for
EVERY REQUIREMENT
STANDARD REFRIGERATION CO.
6034 W. North Ave.
Chicago 39, Illinois

Write for our NEW Catalog



Sears Supplier Opens Air Conditioned Plant For Home Furnishings

PERRY, Ga.—Full air conditioned throughout, the new Perry Mfg. Co., an affiliate of Sears Roebuck & Co., has begun operations here.

The building occupied by the enterprise is said to be one of the most modern of its kind in the country.

About 70 employees are on the payroll, producing draperies, curtains, and other home furnishings. Wallace Cotton is plant manager.

Completes Laboratory for Air Conditioner Research

AMPERE, N. J.—Completion of a new 10,000-sq. ft. research laboratory here for the development and testing of packaged air conditioning products was announced by M. M. Lawler, vice president and general manager, Air Conditioning & Refrigeration Div., Worthington Corp.

Lawler stated that the lab will serve a two-fold purpose:

1. Provide facilities for product development and research, leading toward better and more efficient quality control of packaged products.
2. Fully test packaged prod-

ucts in accordance with ASRE testing procedures and the ARI compliance program.

The laboratory building consists of two main sections:

1. A sample shop that is equipped to build up complete units for testing and development.

2. Temperature and humidity controlled test rooms to measure the performance of fans, coils, and condensers. Simulated field tests at 40° to 130° F., covering a wide range of humidity, can be conducted in these rooms. The test rooms are so

arranged that air-cooled systems can be tested with separately controlled indoor and outdoor conditions.

E. W. Staehle supervises operations at the lab under the direction of H. Wolf, chief engineer of the Research & Development Section.

San Fernando Valley Homes Get Conditioning

LOS ANGELES—Air conditioning is one of the features of new homes built in Park Reseda in San Fernando valley. Homes are priced from \$16,950.



Lau Electro-Wheel® = more air with less power

Compact, Exclusive LAU Electro-Wheel moves more air against higher statics at minimum sound level

We reversed the rotor and stator so we could center the motor *inside* the wheel on a stationary shaft. Result? More c.f.m. per watt input because the split capacitor motor delivers torque directly to the wheel. See how the venturi openings are virtually unobstructed for easy air flow. And flow it does because patented Electro-Wheel Blowers use LAU's exclusive Preslok® wheels which increase maximum operating speeds 50% over conventional models.

COMPACT DESIGN—Nothing extends beyond the scroll sides. Pre-punched scrolls let you choose any of four angles of discharge.

SERVICE is practically nil compared to belt-driven blowers. No starting switch! No belt, pulleys, bearing and shaft journals. Just *one* moving part!

QUIET! Shaft is rubber mounted. Motor and wheel assembly is factory-balanced as a unit under its own power—just like it operates.

Available in 9 and 10 inch diameter wheels in full-width and ¾ sizes with ¼, ½, and ¾ h.p. motors.

Now's the time to check into LAU Electro-Wheels and other blower assemblies. LAU BLOWER COMPANY, 2027 Home Avenue, Dayton 7, Ohio. Other plants at Irwindale, California and Kitchener, Ontario.

Here's the Man to Call...

Cincinnati 38, Ohio
Don G. Jensen
6422 Glade Avenue
Cleveland 24, Ohio
Charles C. Milley
1561 Woodrow Avenue
Cranford, New Jersey
E. C. Wolford
11 English Village
Dearborn, Michigan
J. B. Wallace
9 Byfield Lane
Denver 2, Colorado
Ben T. Clark
1421 Court Place
Elmwood Park 25, Illinois
William J. Lohrey
2047 77th Avenue
Kansas City 14, Missouri
Charles L. Sigman
8906 Holly Avenue
Pasadena 8, California
G. R. Mergenthaler
495 Cliff Drive
Prairie Village 15, Kansas
Victor Stewart
7112 Buena Vista
Seattle 55, Washington
William M. Peistrup
19246 Lago Place
Syracuse, New York
Henry Seebach
560 Allen Street
York, Pennsylvania
E. F. Humphrey
327 Lambeth Drive



The BIG Wheel in air moving

Dealer Hopes That Plugging Leaks Will Yield Firm Greater Profit for Effort

Too Much Work for Others and Too Many Attic Unit Installations Seen as Two of Many Areas of Loss

By George M. Hanning

MEMPHIS—"I'm ashamed to admit it, but we did twice the business in 1957 as we did in 1956 and made less money," asserted Marvin Allison, president of Airco Service Co. here.

It won't happen again in 1958, the residential air conditioning dealer vowed. He believes he has discovered the profit leaks and has taken steps to plug them up.

Airco Service last year installed and serviced not only the air conditioners it sold itself but also units for other dealers around town.

In fact, Allison installed three times as many units for others as he sold himself.

That is the first factor of his business that is going to be changed this year. There will be less installing for others and more concentration on selling his own equipment, he declared.

Allison also cited three other steps he is going to take to insure a better profit picture.

1. He will spend less effort selling attic-type air conditioners and concentrate more on split systems with the condensers mounted outside.

The reason is strictly economic.

"It takes two men and a truck two and a half days to install an attic unit," he asserts. "It takes two men and a helper only one day to install a remote unit—and the helper is needed only half a day.

"It is obvious that by concentrating on remote units, we can make more installations with fewer men and fewer trucks."

2. He will employ only the number of men he can control.

"Last year, doing one of the largest installation businesses in the city, I had too many men and lost control," he admitted. "Because the men were not used efficiently, money was wasted. You have to keep control if you are going to make money."

NLRB Ruling Describes Welders 'Appropriately Represented' at Braun

WASHINGTON, D. C.—In the metal trades, welding is normally a function of a particular craft and welders are appropriately represented by the craft union having jurisdiction over that craft, is the essence of a finding by National Labor Relations Board here recently.

Dismissing a petition filed by National Union, United Welders of America (Ind.) in the C. F. Braun & Co. case, NLRB ruled that employees who devote 50% or more of their time to welding, burning, or a combination of both, "does not constitute a separate and distinct craft group eligible for craft severance."

Citing a former case, the NLRB then stated that the "welders are appropriately represented."

3. He will drop his service contract business.

"I feel we will get the business anyway, whether the customer is under contract or not," he argued. "They know we give good service."

"Last summer we had to turn down profitable service jobs that came up because we were committed to contract service. Without contracts, we will be able to pick and choose our jobs during the busy summer season."

Between them, these steps should assure a more profitable season, he believes.

(Continued from Page 1)

of equipment, including a number of new items just now being introduced to the trade.

Among these new items was a multi-zone unit for use with high velocity systems, shown by Drayer-Hanson, aimed at providing a wider market and more flexibility in the application of high velocity systems.

A new combination air-cooled water-cooled condenser, aimed at retaining the advantages of the air-cooled condenser while maintaining design pressures under all ambient conditions and providing a secondary system capable of handling the load in case of fan failure, was introduced by Dunham-Bush, Inc.

A 30-ton air-cooled condenser, single unit in vertical design, was shown by McQuay, Inc., and new large size evaporative con-

densers were shown by Baltimore Aircoil Co., Inc.

New and more effective air filtering devices, important in the southern California area, was shown by such companies as American Air Filter Co., Inc., Barnebey-Cheney Co., Electro-Air Cleaner Co., Inc., Farr Co., and Trion, Inc.

Despite the interest shown by many exhibitors in holding the Western Show on an annual basis, the Show committee and management is standing fast on its plans to conduct future shows on a once-every-two-years basis. Thus the next Western Exhibit and Conference is scheduled for 1960.

Attendance at the Show was drawn from many parts of the Far West, and as noted last year, there was a good sprinkling of buyer interest (from

big chains, aircraft plants, and industrial users).

The Technical Conferences drew excellent attendance (one speaker declaring that attendance was larger than at many sessions of national technical societies) and brought about some spirited debates on very practical problems.

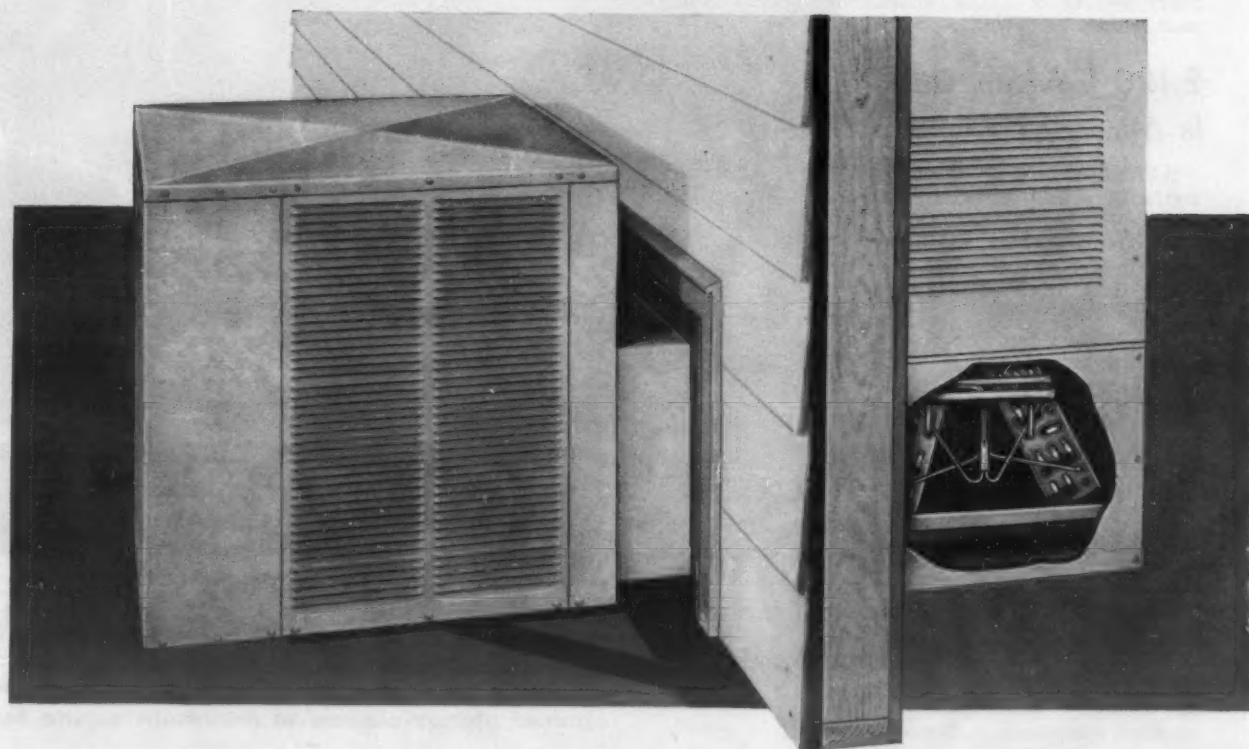
The symposium on "School House Environmental Control," for example, worked into a friendly but intense discussion that got into the relative merits of unit ventilating and air conditioning units, radiant heating and cooling systems, and central-type air conditioning systems.

There was general agreement among all parties to the discussion, however, that all new school construction should make provision for complete year-

THREE NEW PRODUCTS TO HELP YOU SELL EVERY PROSPECT!

① new Frigidaire Trans-Wall

SLIDES IN LIKE A DRAWER!



PROVIDE FULL-HOME AIR CONDITIONING NOW...OR LATER WITH EVERY NEW FURNACE YOU INSTALL!

Another Frigidaire First! Installed For a Year at NAHB Research House

Here's a completely new concept in full-home air conditioning—the Frigidaire Trans-Wall System! New "slide-in" Trans-Wall Units are now in production after a full year in an actual installation at the NAHB (Home Builders) Research House, Kensington, Md.

The Frigidaire Trans-Wall System is the simplest, most compact year-round comfort maker ever devised. Here's why! The complete all-in-one Trans-Wall Unit consists of an air-cooled condensing unit with twin Super Meter-Miser Compressors plus a "wall-sleeve" that slides through wall to furnace, and a high-effi-

ciency "inverted V" cooling coil that fits into pre-installed housing to give full-home conditioning with any Frigidaire furnace.

Ready to Install—FAST!

All internal wiring is done, refrigerant lines connected, system sealed and checked by the factory. With the furnace located at an outside wall of the house and coil housing in place, all you do is slide Trans-Wall in place and wire in. Trans-Wall System utilizes furnace blower and ductwork.

FRIGIDAIRE DIVISION

General Motors Corporation, Dayton 1, Ohio

While Others Dream of the Future—

FRIGIDAIRE

Air Conditioning Show--

round air conditioning. This was emphasized by the school authorities present who pointed out that in southern California, it is estimated that the school population may double within the next seven years. There was general agreement also that complete year-round air conditioning for new school construction could be completed within the limits of \$2 per sq. ft.

The symposium on "Air Conditioning Existing Buildings" brought about an illuminating debate on two somewhat unrelated subjects—the advisability of having a consulting engineer on the job, and responsibilities of such an individual; and the other subject concerning itself with the relative merits of central or zone type air handling systems versus individual or "through-the-wall" units in ex-

isting building air conditioning.

The case for the consulting engineer, somewhat paradoxically, was made by a contractor, Henry Ulovec. His prime point was that in an air conditioning job of any size, the prospective purchaser would avoid confusion and center responsibility by hiring a consulting engineer to draw up plans and engage a contractor to follow through on these plans.

Rebuttal to this, which came from floor discussions, was to the effect that a prospective purchaser might make a better deal by getting bids from various contractors, and since the contractor usually specifies the actual equipment to be installed and installs it, the responsibility should be centered in him.

In the debate of the selection of the best type of equipment

for existing buildings, Cary Gamble, consulting engineer from New Orleans, while conceding the flexibility and possible purchasing factors favoring the individual units, declared that complete air conditioning, under all load conditions was possible only with the central type of systems.

Other discussions included an interesting exposition on "Air Conditioning Existing Residences," by George Frimier and George Kelley of Day & Night Mfg. Co.; "Residential Heat Pumps" by James Kercheval, General Air Conditioning Corp.; and "Water Conservation" by Ralph Westcott, Los Angeles Consulting engineer.

A session on automatic defrost systems drew a good Saturday morning crowd to hear D. D. Wile of Recold Corp. lead a discussion on systems, and Charles Hansen, Refrigerating Specialties Co., talk about heat pump controls.

'Ready for Added Cooling' Policy--

(Concluded from Page 1)

sulation shall be either vapor-proof or enclosed within a carefully sealed vapor barrier as specified in Paragraph 6e of FHA Mechanical Engineering Bulletin ME-13-A. (These requirements will usually not apply where ducts are located within basements or weather-proofed crawl spaces, or embedded in concrete slab floors.)

B. Utility Services.

1. Electrical service and service panel box will normally be 115/230 volts, single phase, and shall be of sufficient capacity for normal lighting and appliances plus the air conditioning equipment. Local utility requirements may necessitate the use of other voltages and/or three-phase power supply.

2. An open drain for condensate removal shall be located at

the probable air conditioning unit location. This drain shall be connected to an adequate drainage disposal system.

C. Equipment and Accessories.

1. When equipment is contemplated in which winter and summer heat exchangers are located in series with respect to air flow for year-round operation:

(a) Furnace, as originally supplied, shall be designated by manufacturer and have appropriate AGA or CS195-57 listing as being suitable for use with pressures and air volumes for year-round operation when the cooling coil is installed.

(b) Furnace blower, as originally supplied, shall be capable of developing sufficient total pressure and air volume for year-round operation against resistance imposed by evaporator coil and duct system. (This may or may not involve a change of blower motor, motor pulley, blower pulley, or belt at any time of conversion to year-round air conditioning.)

(c) Provision shall be made for later installation of properly sized evaporator, either mounted integrally within the furnace or in the form of adequate plenum or duct space for the evaporator and connections, as verified by dimensions from manufacturer's specifications.

When Heat Exchangers Are In Parallel

2. When equipment is contemplated in which winter and summer heat exchangers are located in parallel with respect to air flow for year-round operation:

(a) Sufficient space shall be available for later installation and service of summer air conditioning unit, and later installation of tight fitting dampers to prevent air circulation through the furnace during the summer and through the air conditioning unit during the winter.

(b) Both return and supply duct system shall be installed so that summer air conditioning unit can be attached to it without extensive alternations of existing ducts.

3. When equipment is contemplated in which winter and summer heat exchangers are located in series with respect to air flow during cooling operation and in which the evaporator is out of the air stream during heating operation:

(a) Sufficient space shall be available for later installation and service of summer air conditioning unit, and installation of connecting ducts and damper or dampers.

(b) Supply duct system shall be installed so that summer air conditioning unit can be attached to it without extensive alterations of existing ducts.

4. The initial heating installation may incorporate only a heating thermostat, but installing either a heating-cooling thermostat or a thermostat readily convertible to year-round operation is desirable.

5. Control wiring incorporating a minimum of five conductors shall connect the furnace and the thermostat.

full-home air conditioner

INSTALLS EASIER THAN SIMPLEST FURNACE!

New—completely self-contained air-cooled package

Simplified installation

No concrete base needed

Factory-sealed

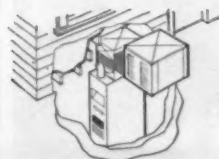
Uses furnace blower and ductwork

No plumbing for water supply

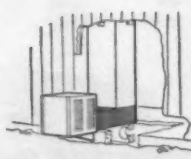
No refrigerant connections

Two sizes
24,000 and 35,000 BTU/hr.

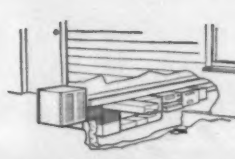
Twin compressors



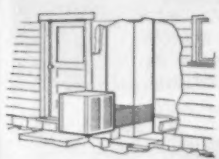
BASMENT TRANS-WALL SYSTEM
Trans-Wall Unit slides into coil housing above Frigidaire Vertical Upflow Type Furnace. Adaptable to Lowboy Type.



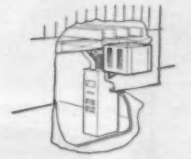
SLAB TRANS-WALL SYSTEM
Trans-Wall Unit installs under Frigidaire Vertical Downflow Type Furnace in housing.



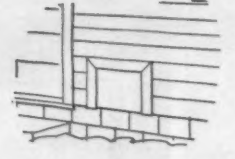
CRAWL SPACE TRANS-WALL SYSTEM
Frigidaire Horizontal Type Furnace. Trans-Wall Unit installs in crawl space with plenum added below coil housing.



CRAWL SPACE TRANS-WALL SYSTEM
Trans-Wall Unit installs under Frigidaire Vertical Downflow Type Furnace. (Modified Slab hook-up.)



TRI-LEVEL TRANS-WALL SYSTEM
Trans-Wall Unit, bracketed above ground level, installs in coil housing above Frigidaire Vertical Upflow Type Furnace.



ROUGH-IN NOW—INSTALL LATER
Locate new furnace adjacent to outside wall, add coil housing and prepare wall opening. Slide in Trans-Wall Unit at later date.

SIMPLIFIED INSTALLATION! TRANS-WALL UNIT SLIDES INTO WALL OPENING 14" x 24"

Less than 350 lbs. net weight, new AIAZ-240 Frigidaire Trans-Wall Unit is easily installed by two men using ordinary tools. Trans-Wall easily adds a full 24,000 BTU/Hr. of Dry-Cool Comfort in virtually any style home after furnace and coil housing have been installed.

1. Rough-in opening. 2. Attach outside mounting brackets (furnished). 3. Complete installation by sliding Trans-Wall Unit in place—connect control box (furnished) and wire in. 35,000 BTU/Hr. unit weighs 370 lbs. and requires slightly larger wall opening 17½" x 24".



2 NEW HORIZONTAL CONDITIONERS

Air-Cooled



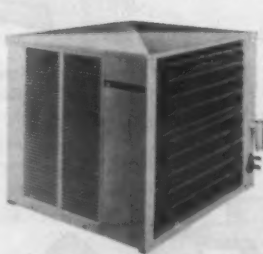
Model AAZ-190 full 19,000 BTU/hr. cooling capacity. Model AAZ-340 full 34,000 BTU/hr. cooling capacity.

• Compact. Some installations require wall opening less than 2½ ft. x 2 ft. • Factory wired to external control box, and tested to minimize on-site costs. • Sealed Super Meter-Miser Compressors never require oiling. • Model AAZ-340 has two compressors (only one operates during mild weather).

Compact units for simplified installation in new or existing structures, designed for all inside, all outside or partially through-the-wall applications. Ideal for attic operation. Can be installed in offices and small shops requiring little or no ductwork. Pre-wired to cut installation time and expense. Adaptable to homes with radiant heat, or where present ductwork is too costly to disturb.

3 NEW CONDENSING UNITS

Air-Cooled. 2 and 3 ton sizes



Model CUAZ-210—full 21,000 BTU/hr. capacity. Model CUAZ-320—full 32,000 BTU/hr. capacity. Other Frigidaire Condensing Units with capacities up to 87,000 BTU/hr.

These new lower-priced units have built-in Frigidaire quality and take less than 5½ sq. ft. of floor or ground space.

- Pre-wired to external outlet box—cuts installation costs.
- Powerful 20" propeller fan mounted on motor shaft eliminates pulleys and belts.
- Full hermetically sealed reciprocating compressor contains lifetime supply of oil.
- Multipath condenser coil design speeds heat removal.
- Weather resistant cabinet for long life.

For more information call the Custom Products Representative at your Frigidaire distributing headquarters.

IS ON THE MARCH!



Frigidaire—Built and Backed by General Motors

Dealers Need Air Conditioning In Own Homes, Contends Wholesaler—and He Has It

PEORIA, Ill. — First-hand knowledge of installing and operating residential air conditioning is essential for successful selling of comfort cooling, their dealers are told by Frank and Willis Mehrings, father and son who operate a heating and air conditioning wholesale supply house here, and these two back up this theory with installations in their own homes.

Both of these jobs went into existing homes and involved addition of cooling to the present heating ductwork, and both proved convincingly successful, says the senior Mehrings, who formerly was vice president of a furnace manufacturer before

establishing Heating and Air Conditioning Supply and Service Co. here.

"I can testify that a 3-ton 'A' coil slipped into the warm air plenum and connected to a remote air-cooled compressor-condenser unit set nearby outdoors—total installation time less than 10 man-hours—produced results up to and exceeding my fondest expectations," Frank Mehrings comments.

His house is a large one, too, a four-bedroom, two-story Colonial built in 1939. The heating system consists of a 165,000 B.t.u. input gas "lo-boy" furnace, extended plenum with round pipe and elbows, high in-

side wall outlets and baseboard returns in outside walls of all rooms.

"The only change that seemed desirable, and it was found that even that was not essential, was to speed up the blower, which had been adjusted for C.A.C.," Mehrings says.

"Incidentally, it was found by experimentation that the best way to cool the entire house was by closing downstairs warm air registers and delivering all the cool air to the upstairs rooms, using only the stacks originally installed for heating.

"But in view of the fact that comfort cooling is most desirable for daytime as well as

night, it was found that by closing upstairs registers in the daytime and closing downstairs registers at night, absolutely nothing was left to be desired from a standpoint of comfort, day or night," Mehrings adds.

He also discovered he didn't have to insulate basement duct-

work to prevent condensation. If one of this firm's dealer customers wants information about self-contained air-cooled add-on units, he talks to son Willis Mehrings, who has a 2-hp. unit mounted through the foundation of his home and connected to existing ductwork.

WHAT...WHEN...WHERE — A Guide to Coming Events of Interest

Institute of Appliance Mfrs. Annual Convention, Exposition
June 1-4, Netherland-Hilton hotel, Cincinnati.

Edison Electric Institute Annual Convention
June 9-12, Boston.

Oil-Heat Institute of America Convention, Exposition
June 9-13, New York City.

American Society of Heating & Air-Conditioning Engineers
and American Society of Refrigerating Engineers JOINT
MEETING
June 23-25, Leamington hotel, Minneapolis.

You can count on
**HIGHER
PROFITS**

WITH

Curtis

AIR CONDITIONERS

HERE'S WHY...

MAXIMUM DEPENDABILITY

Each CURTIS unit is backed by 104 years of engineering and manufacturing experience... one of many reasons why CURTIS air conditioning equipment operates at maximum efficiency with a minimum of maintenance.

CUSTOMER SATISFACTION

The long operational life and minimum service requirements of CURTIS air conditioning, combined with peak performance, assures satisfied customers.

PRE-SOLD PROSPECTS

National advertising beamed at virtually every prospect category helps pre-sell Curtis equipment for you. CURTIS provides sales and promotional aids to make your selling job easier.

PRICED FOR PROFITS

All Curtis air conditioning equipment is competitively priced, with a very generous profit margin for you!

REMEMBER—
you can count on

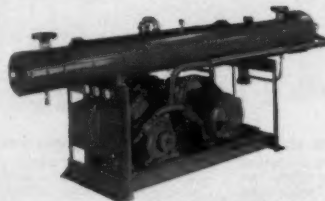
Curtis

OUR 104th YEAR
MANUFACTURING COMPANY • REFRIGERATION DIVISION
1912 Klenfen Ave., St. Louis 20, Mo.

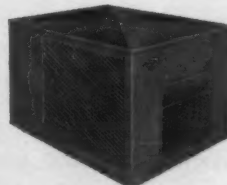
Represented in Canada by—T. M. Hall Ltd., 30 Milner St., Montreal West 28, P.Q., Canada



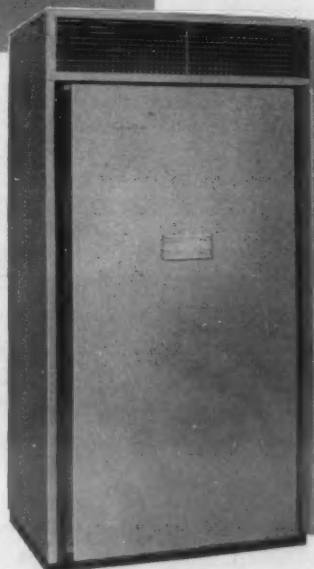
Evaporative Condensers
and Cooling Towers
up to 100 tons
Air handling units to match.



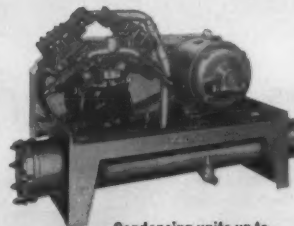
Packaged Liquid Chillers—
7½ to 100 tons—F-12 or F-22.
With room console units to provide
controlled cooling and heating
without duct work.



Packaged Air Cooled Air
Conditioning Units—2
through 7½ tons. Residential
and commercial applications.



Packaged
air conditioning
units—
3 through
50 tons.



Condensing units up to
100 tons—F-12 or F-22.

Michigan Sheet Metal Group Offered Insurance 'At Marked Reduction'

DETROIT — Employees of heating, sheet metal, air conditioning, and related concerns in Michigan, whose employers are affiliated with the Michigan Heating & Sheet Metal Association, are being offered group insurance "at a marked reduction in cost" under a program launched by the state association in conjunction with a major insurance company.

The group insurance program will be offered to about 200 concerns, employing about 5,000 workers, now affiliated with the association; and to employees of other contractors in the industry who become members.

Charles S. Flynn, Muskegon, president of the state group, said the state association has arranged for the Association Insurance Co., of Wisconsin, to underwrite the group plan.

According to Flynn, the coverage also will be available to employees of manufacturing and distribution concerns affiliated with the state "Auxiliary."



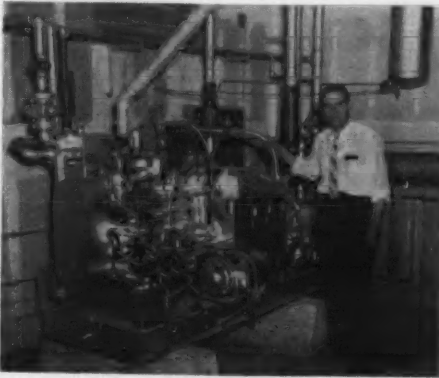
NEW MADDEN CHARGING AND TESTING MANIFOLD

For testing and purging both high and low sides. Helps servicemen find trouble quickly. Features Teflon seat, and requires only light hand pressure for positive shut-off.

Plus our complete line of Wimco Tools: flare tools, tube benders, tube cutters, bending springs, etc.

SEE YOUR MADDEN WHOLESALER

MADDEN BRASS PRODUCTS COMPANY
AURORA 6, ILLINOIS, U.S.A.
EXPORT: Ad Aurum 88 Broad St., New York, N. Y.



YEAR-ROUND comfort at Five Points Bowl in El Monte, Calif. is provided by the first southern California installation of this gas-powered air conditioning equipment made by Ready-Power Co. Carl Di Ciolla, general manager of the bowl, displays the system.

So. Calif. Bowling Alley Has Gas-Powered System For Year-Round Comfort

EL MONTE, Calif. — The spectacular new 32-lane Five Points Bowl which opened here early this year not only offers the latest in automatic bowling equipment, eating, and recreational facilities, but it also boasts the first southern California installation of a new gas-engine powered air conditioning system, built to insure all-year-round comfort for patrons.

The bowling alley, operated by Henry Catalano, L. L. Hamman, and Carl Di Ciolla, general manager, for owner M. L. Rau, was designed by Architect Johnson & Engen, A.I.A. The building contains, in addition to the bowling lanes, a dining and cocktail lounge, and coffee shop.

The 24-hour, year-round operation of a bowling alley requires special attention to air conditioning, and the 65-ton Ready-Power natural gas-engine unit was designed specifically to meet all such challenges, according to experts at Southland Heating & Air Conditioning Co., contractor who supplied the Ready-Power equipment.

The Ready-Power equipment has been in use in the south and midwest for several years, but the current installation is the first in the southern California area, it was pointed out.

The equipment contains a "Loadmatch" control which automatically varies the engine speed and pumping rate of the compressor cylinders to keep pace with actual cooling requirements of the building, it was stated.

The thermostat controls are completely automatic throughout.

Worthington To Cool Milwaukee Utility

HARRISON, N. J. — Worthington Corp. announced that it has supplied 452 of its "Slimline" induction circulators to Milwaukee Gas Light Co., Milwaukee.

The refrigeration system will be installed later in the year and will be of the absorption type because of the availability of steam. Mechanical contractor is John J. Jung, Inc. and the consulting engineer is Lofte & Fredericksen, both of Milwaukee.

To Be Warren Webster Service Parts Co. Named Distributor Sales Promotion Mgr. Of Dunham-Bush and Brunner Products

CAMDEN, N. J. — Warren Webster & Co. has appointed A. N. Clark, Jr. as manager of advertising and sales promotion.



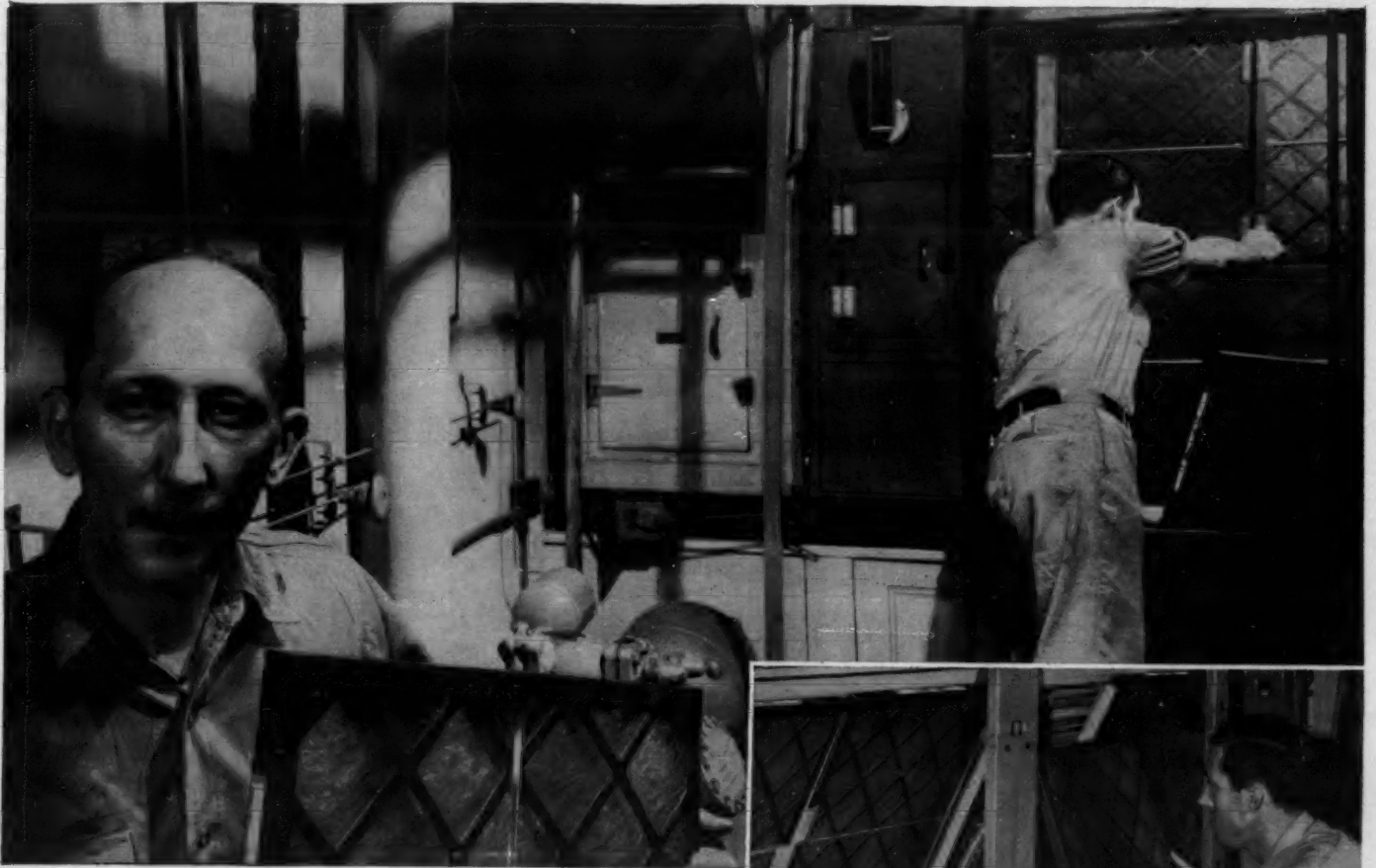
A.N. Clark, Jr. served as ad manager of Baldwin-Lima-Hamilton.

WEST HARTFORD, Conn. — Dunham-Bush, Inc. has announced appointment of Service Parts Co., Melrose, Ill., as exclusive distributor for both the Dunham-Bush and Brunner line of air conditioning and refrigeration products in the metropolitan Chicago area.

Service Parts was organized in 1937 as a national wholesale hermetic rebuilding service. As the nature of the industry changed, the company gradually expanded into the stocking

and distributing of parts and supplies and eventually concentrated exclusively on that phase of the business.

Today the company occupies nearly an acre of space at one main distributing point. A 30,000-sq. ft. area under a single roof is devoted to stocking parts and accessories for complete cooling installations from 1/4 to 100 tons. Service Parts' six full time salesmen are all graduate engineers with an average of 10 1/2 years in the industry.



"Glasfloss is the only filter of this type on the market that we know of which deals so effectively with the abnormal dust, moisture and velocity conditions under which our air conditioning system operates," says Mr. Harry Havekost of Sixty Wall Tower.

New Glasfloss Safety-Grille Filter has chipboard frame and grille which eliminates danger of cut hands and wrists when changing filters.

New Glasfloss® Fiber Glass Safety-Grille Filters pass critical performance tests at Sixty Wall Tower

"We tested the new Glasfloss Safety-Grille Filters in many critical locations in our building," reports Mr. Harry Havekost, Chief Mechanic in charge of air conditioning, Sixty Wall Tower, New York City. "The results were highly satisfactory."

"Our air conditioning system, operating at 375 to 650 ft/min air velocity, must filter out carbon and paper dust from business machines and dirt from nearby smoke stacks. We also suffer abnormal humidity conditions which cause separation of chipboard frames from metal grilles; this sometimes causes the fiber glass to blow out, impairing filtering efficiency.

"But the new Glasfloss Safety-Grille Filters proved themselves sturdier and more effective than the older-type metal grille filters. The strong, one-piece chip-

board frame and grille construction gives a sturdy anchor to the fiber glass and prevents 'blow-outs.' We use two one-inch filters back-to-back in each panel. The grilles line up perfectly; there is no loss of available filtering area.

"Our maintenance men like handling the new chipboard Safety-Grille. Now, there is no danger of annoying cuts which were prevalent when we had to deal with fine-edged metal grilles."

TRY NEW GLASFLOSS SAFETY-GRILLE FILTERS IN YOUR SYSTEM

Get top filtering results—plus safety! Glasfloss Fiber Glass Safety-Grille Filters are available in a complete range of sizes. Call your nearest Glasfloss Distributor or PPG Warehouse for service.

A PRODUCT OF PITTSBURGH PLATE GLASS COMPANY

Sales Offices are located in the following cities: Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, Minneapolis, New York, Philadelphia, Pittsburgh and St. Louis

SYMBOL OF SERVICE FOR SEVENTY-FIVE YEARS
PITTSBURGH PLATE GLASS COMPANY



SEND FOR REPRINTS

Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors.

Only 40¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

PROFIT SHARING PLAN

Principles of Plan Which May Help Contractor Keep His Valuable Employees Outlined for RACCA

CHICAGO — A profit-sharing plan is often particularly well-suited to an air conditioning and refrigeration contractor's business, and may have an important role in helping to keep valuable men in an organization, stated Warren Farr, president, Refrigeration Sales Corp., Cleveland, in addressing the RACCA national convention "Welfare and Progress Forum."

"We have heard several members tell about the importance of retaining manpower within an organization, and we've also heard about the extreme expense involved in taking a man from scratch and training him to be a valuable man in our industry," said Farr in introducing his subject.

"Also touched upon was the fact that in order to build strongly and secure the type of man that can go out and meet the public, we probably are seeking a man between the ages of 28 and 38. We are looking to either allied industries or maybe even to college graduates with some basic training, to develop that man who can present our problems to the public.

"Profit sharing can probably be one of the most important tools in keeping this manpower, once we have selected and trained an adequate man," the Cleveland contractor pointed out. "Profit sharing can be fitted for any form of business, an individually owned operation, a partnership, or a corporation.

"It is particularly adaptable for the closely held corporation, and a survey of our industry would indicate that this probably is the form of business organization most commonly found in the refrigeration and air conditioning industry."

Basically, the profit sharing plan is a plan that takes some percentage of the profit before taxes and sets it aside, tax free, for the benefit of either all em-

ployes or a selected group of employees. This can include the principal stockholders, and in a closed corporation, the owners. There is a limit on how profit can be set aside for such purposes, Farr explained, this being not to exceed 15% of the total payroll of the group that will be included in the plan.

Bureau of Internal Revenue Must Approve

In the profit-sharing plan the trustee of the fund has the right to hold these funds for the group covered, to distribute the fund at retirement age or before, and the trustee has very broad powers in investing the

fund in almost any type of securities, real estate, or insurance. Profit sharing plans require the approval of the Bureau of Internal Revenue.

"Let's look at profit sharing through the eyes of an employee, and we might think of this man in his middle or late '20's," said Farr. "One of the big problems for such a man, starting out with a new job and probably starting to build a family, is to create some security and create estate as rapidly as possible.

"This is an expensive thing if he does it himself. Profit sharing, coupled with insurance, can do this job for a man and can do it very economically.

"As an example, these figures are not exactly correct, but they will serve as an example, it would be possible to create an estate by purchasing \$30,000 worth of insurance which, at the age of 35, would cost an individual maybe around \$1,300 a year. A corporation could probably buy this insurance, under a group plan, for approximately \$900 a year. In the eyes of an employee it is a \$1,300 value or more, because he would have to be paying it out of taxable income.

"Also, from the corporation standpoint, the \$900 would be on the basis of 50-cent or 70-cent dollar, depending on which tax bracket the corporation was in.

"Probably one of the greatest benefits for the corporation in the profit sharing plan is that in each transaction throughout the year, the employee who is participating in the plan is

profit minded. He realizes that if he creates even a relatively small additional profit on a day-to-day basis, that he is going to share it.

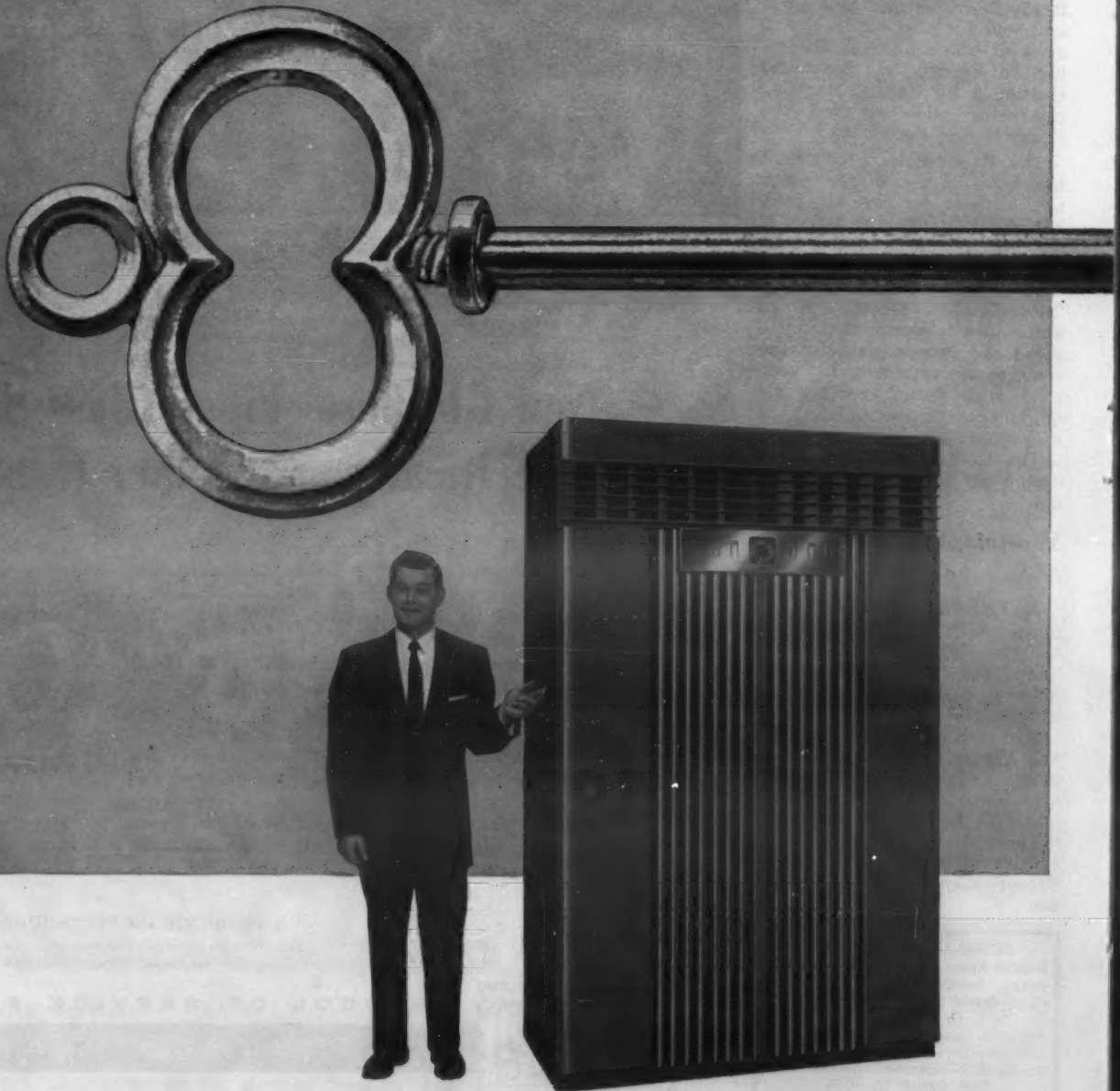
Give Man an Incentive Beyond Salary

"Therefore, if you would develop a man to be a better engineer or salesman, a profit-sharing plan gives him an incentive beyond salary, on an incentive basis."

Farr gave a number of examples of what various profit sharing plans for men of varying ages and income would mean in terms of establishing an immediate estate, and in terms of retirement income. He pointed out that such funds are held tax free until distributed, and if the employee then takes them in a lump sum, they are subject to a capital gains tax rather than an income tax.

"If you will look into the op-

Now—unlock your full profit-potential with American Blower Packaged Air Conditioners



**Removes MORE
SCALE per
Dollar Spent!**

VAPCO SCALE REMOVER

The activated acid in powder form containing inhibitor, wetting agent and algicide for a COMPLETE cleaning job under the most severe conditions. Easy on galvanize—safe for equipment. Keeps head pressure down—efficiency UPI 10 and 50 pound drums with "Tel-Action" pH indicators.

VAPCO-HIB

Make your own cleaner with VAPCO-HIB. Added to muriatic acid, VAPCO-HIB increases the acid action, yet provides outstanding protection to metals including galvanize. Supplied in 8 and 32 ounce bottles and bulk.

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PRODUCTS
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GARMAN COMPANY
ST. LOUIS 23, MO.

erations of the big companies in this country, you will find these plans are in force at the present time. If you take a look at the trends now, there is no question but that there will be a terrific competition for the available manpower.

"I don't think it is a matter of whether you desire it or not. I think you will be forced to meet the plans that the big companies are going ahead with, in order to recruit the proper manpower."

Farr warned that when contractors are ready to set up a profit-sharing plan, they should seek proper counsel. RACCA has prepared a section in its handbook, which can serve only as a general guide. Insurance companies, tax attorneys, and accountants can provide valuable information. Proper investigation should also be made of various methods of setting up trustees.

Profit Sharing Plan Questions, Answers

There were a number of questions from the floor about profit-sharing plans, and the following are some of the more significant ones, with answers supplied by Warren Farr after the speech carried on these pages:

Q. In your discussion you said "Take the money before taxes" and set it aside tax free for a profit sharing plan. Would you explain this?

A. The money for the profit-sharing plan is computed after profits are computed, but before Federal income tax. The money that is set in a profit-sharing plan is an expense of the business. Therefore, it is removed from profit and is non-taxable at the corporate level.

Then, it is turned over to the

trustee who administers the fund under a plan, and it is tax free to the employee until the day in which the funds are distributed. At that point there can be substantial tax savings because if distributed in a lump sum it will be taxed as capital gains rather than income.

Q. Do you think that the best plan will include insurance?

A. What you should try to do is to meet the need. If you bring a young man—a college graduate—into your organization, the cost of living is high particularly if he is married and about to have his family, and if he is about to buy a substantial amount of insurance, he has to earn a substantial amount of money—on which he

will have to pay taxes—to do it. If you want to keep your salary brackets right, then insurance should be a part of the plan. There you can provide an immediate estate which takes over part of the load which the man would have to do for himself.

Another thing. With a new employee, it is very difficult to tell him "If you go along and do a job, you are going to end up with such-and-such." But it is very possible with the profit sharing to project and tell the man "if the profits will be reasonably consistent you can walk out of here when you are 65 with \$85,000." That will stay with a man as long as he works with you, and each year he will see the program unfold.

Q. Can you tell us the broad limitation set up by the Internal Revenue Bureau regarding how participation in a profit sharing plan can be limited. Can it be set up purely for executives? Do you break off the wage earner?

A. In broad terms, the profit-sharing plan must not be discriminatory. It would be impossible to get a plan approved if you had two switchboard operators, and one was covered by the plan and the other one was not. One safe method is to select, say, salaried employees, and eliminate everybody on an hourly basis.

Q. Are these plans based on a percentage of the earnings of the individual?

A. Most of them are set up on a basis of percentage of earnings. Divide payroll dollars in hundred dollar shares, into the percentage of profit, and set it aside.

Q. In a profit sharing plan with insurance as part of it, if you do not make a profit for the year, are the insurance premiums met from some other source? I am comparing the profit sharing plan versus the straight retirement plan in which the company pays a definite amount in each year regardless of profit.

A. One typical method might be to earmark 25% of the funds for insurance, and 75% for the reserve fund to be invested. If in the following year there was no profit, you could draw on that particular fund. If a long period of no profit existed, you could borrow against the policy and you might stretch this out for six or seven years. It would depend on how much money was set aside in reserve.

Q. Don't you get the objections to the profit sharing plan from the younger employees, particularly, that they are more interested in immediate added rewards, and don't care to be looking ahead to age 65?

A. If that reaction is experienced, it would seem that a poor selling job had been done, because a company can do so much more with the money than the employee can. It is also possible to add to profit-sharing plans an investing formula whereby those who worked for the company could get some when they left.

COMPLETE LINE

You can handle any commercial job—factory, office or store—when you install American Blower's complete line of packaged air conditioners. Comfort-engineered models, air- or water-cooled, are competitively priced . . . easy to install.

SOLD THROUGH REGULAR CHANNELS OF TRADE

Distribution of American Blower Packaged Air Conditioners follows normal channels: factory-distributor-dealer/contractor-user. Direct inquiries are referred to your supplier, who'll pass them along to you. These qualified prospects mean more business.

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American Blower has been known and trusted as a leader in air conditioning and ventilation for over 76 years. You'll benefit from our reputation for quality products, engineering excellence, and continuing, basic research. Prestige like this pays off . . . helps you build air-conditioning sales volume.

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Your prospects are *pre-sold* by hard-hitting national advertising in leading consumer and executive magazines, backstopped by full-range dealer advertising and sales promotion at the local level. So your customers know American Blower . . . want American Blower.

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You and your installers can attend classes right at our Dearborn, Michigan, plant. Two 5-day courses in the application and servicing of packaged air conditioners are scheduled regularly. Both are conducted by skilled factory engineers in modern, fully equipped classrooms and laboratories.

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New models—including a full line of air-cooled packaged air conditioners—are available now to help you satisfy the varied demands of this profitable, fast-growing market. Every unit is soundly engineered and fully pretested to meet the high quality standards of American Blower products.

FOR FULL INFORMATION: Write American-Standard,* American Blower Division, Detroit 32, Michigan.

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Thinking of—

- changing territories
- expanding your territory
- taking on new lines—

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CLASSIFIED ADS

Your opportunity may
be there.

'No More Window Washing Problems'

Dealer Offers Aluminum, Glass Room Unit 'Jiffy Slider' To Provide 'More Light, More View, Weather Protection'

NEW YORK CITY—"A new type of window air conditioner installation that solves your window washing problems" is being offered to office building management here by William A. Schwarz and Son, Inc.

Schwarz, a York dealer who advertises that "air conditioning is our only business," promoted his "Jiffy Slider" by direct mail to building managers. The Jiffy Slider allows complete raising or lowering of regular sash behind the air conditioning unit.

The promotion consisted of a folder describing the Jiffy Slider installation, outlining the features of York air conditioners, and emphasizing that Schwarz

is equipped to provide dependable installation and service; a sales letter, and a return postal requesting "facts and figures about room air conditioning."

The Jiffy Slider, according to the letter, is made of aluminum and clear glass. It provides more light, more view, weather protection, and no maintenance problems, Schwarz says.

In promoting the value of his own service, Schwarz declares in the folder:

"An air conditioner is a complex piece of machinery consisting of many components subject to mechanical failure. It is during the hot summer months that you put the greatest strain on your air conditioner—and just

when you need its comforting cooling performance—it is likely to break down. That's when you need a reliable air conditioning specialist.

"Air conditioning is the only business we're in. It's our specialty. When you buy from Wm. A. Schwarz you buy more than a mere piece of machinery. You buy the reliability, integrity, and skilled service know-how that for almost half a century has been the basis of our customer policy.

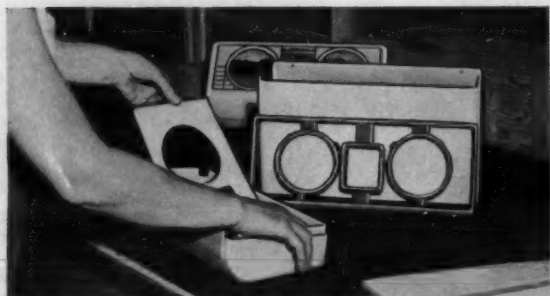
"Yes, when you buy from one of the pioneers of the air conditioning business, you get the assurance of safety, dependability and performance that only specialists can give."

Builder Can Install Room Unit Sleeve Early

COMPONENTS of special kits for installing Frigidaire room units through-the-wall. Pre-installation kit, "WM-1 Sleeve Package," can be used by builders during house construction. Room unit can be added later (completion kit "W Chassis Package").

HOW cabinet sleeve is installed in wall of house during construction period is shown here. Frigidaire room air conditioner can be installed as desired.

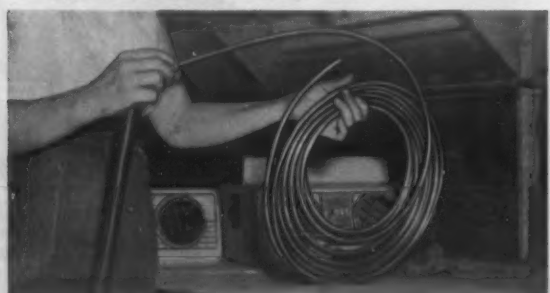
Rubatex insulating and vibration isolation qualities give Clardy auto units effective quiet operation



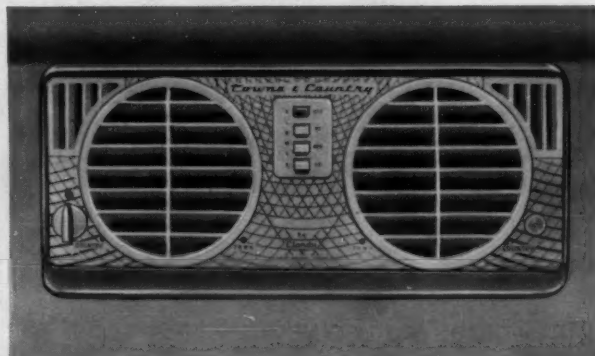
Simple clicker die is used for cutting Rubatex to fit inside of air conditioning cabinet.



Because Rubatex is soft, flexible, easy to apply—the time saved is an important factor in the manufacture of all Clardy units.



Rubatex Closed Cellular Tubing slips on copper tubing with the greatest of ease—keeps cold lines forever dry.



Rubatex Closed Cellular Rubber serves a dual purpose in automobile air conditioning units for Clardy Automobile Air Conditioning Company, Fort Worth, Texas.

Applied to the interior of the under-the-dash air conditioning units the Rubatex seals will not absorb water—and the ease in which these Rubatex seals can be applied is an important time-saving factor.

By placing Rubatex in strategic places, it helps make Clardy units run more quietly as it isolates some of the natural vibration of the unit.

Rubatex Closed Cellular Tubing is also used to insulate copper tubing applied to Clardy air conditioners installed in trunk of car. In this application, too, Rubatex serves as a vibration isolator and keeps rattles to a minimum.



Send for Free Sample and Complete Details

RUBATEX DIVISION, Dept. AC-13
GREAT AMERICAN INDUSTRIES, INC.
Bedford, Virginia



Just fill out and mail for free sample and more information about Rubatex.

Name _____

Store Has 'Good Buy' on 'Misrouted' Conditioners

SPRINGFIELD, Ill. — Sisking's store here recently offered readers "a good buy" in General Electric Co. room air conditioners.

In a full-page newspaper advertisement, the firm promoted a carload sale of "misrouted" G-E appliances, "mostly air conditioners." The ad explained that "Through a routing error this shipment of 109 units scheduled for Springfield, Mo., reached our city—rather than go to the extra expense of reshipment, the factory has requested us to dispose of them at special prices, bigger trades."

Readers were advised they could choose from 1/2, 3/4, 1, and 1 1/2-hp. room air conditioners available "at terrific savings." The ad noted there was "one factory requirement we must adhere to—no sales to air conditioning dealers."

Fedders Names Weiss Chief Engineer

MASPEETH, N. Y. — Walter Weiss has been appointed chief engineer of room air conditioners for Fedders-Quigan Corp., it was made known by Robert H. Meyerhans, director of engineering.

He succeeds Gerald LaPorte who was named assistant director of engineering some months ago.

Meyerhans said Weiss would be responsible for the general supervision of design, performance, research, and development of the complete line of Fedders room air conditioning products.

Weiss joined Fedders in 1949 as a laboratory engineer. His most recent position was assistant chief engineer of the room air conditioner section of the firm.

First Quarter Room Unit Sales Rise In West Penn Area

GREENSBURG, Pa. — Area dealer room air conditioner sales in March totaled 50, down one from the same 1957 month, according to West Penn Power Co., with first-three-month sales reaching 112, a rise over the 92 sold in the same period last year.

Novi Seeks Refrigeration Outlets for Auto Air Conditioners

New Unit Has Under-Dash Evaporator Cabinet Which Measures 6-7/8 In. High

NOVI, Mich.—A new compact auto air conditioner whose under-dash evaporator cabinet is only 6 7/8 in. high was introduced recently by Novi Equipment Co.

Incorporating dual blowers, the 1958 unit is available for 15 different makes of cars with units specially designed to fit each, according to Gunter Haase, Novi district manager for the Detroit area.

Novi this year will not only sell its units through 36 factory branches throughout the country but through other dealer outlets as well. This will include refrigeration and air conditioning dealers, Haase said. Several have already signed franchises, he declared.

He indicated that unfranchised dealers could also purchase Novi units over the counter at factory branches.

Suggested installed retail price for the under-dash model is \$330 and for the trunk unit \$375.

New styling on the 1958 model highlights two spiral-shaped directional air flow louvers that can be adjusted to any position by a dial control. They are patented.

Evaporator is designed to allow a flow of 300 c.f.m. of filtered air. The dual three-speed blowers are pushbutton controlled on the under-dash model. On the trunk unit, two squirrel cage blower motors are controlled for speed and temperature by pull out knobs under the dash.

Novi uses a Tecumseh "Low Boy" automotive cooling type compressor capable of producing up to 5 tons of refrigeration. The under-dash model takes 4 lbs. of Refrigerant-12 and the trunk model 5 lbs.

Novi's own magnetic compressor clutch uses heavy-duty, double-row ball bearings. Stationary field principle eliminates need for contact brushes.

Compressor by-pass system with Detroit Controls modulator valve provides selective temperature control for car interior and automatic protection against evaporator freeze-up, Novi claims.

Double-row condenser and Remco automotive type receiver-drier with block-type calcium sulphate drying element are other features.

Warranty covers labor and refrigerant for 90 days and parts for one year.

Units are available for Ford, Edsel, Mercury, Lincoln, Continental, Chevrolet, Pontiac, Buick, Oldsmobile, Cadillac, Plymouth, Dodge, DeSoto, Chrysler, and Imperial cars.

Units are furnished to dealers in four packages: condenser, evaporator, compressor, and hoses and fan. A five-bladed fan for increased air flow over the condenser is furnished with each unit. So is a detailed installation manual for the particular make of car the unit fits.

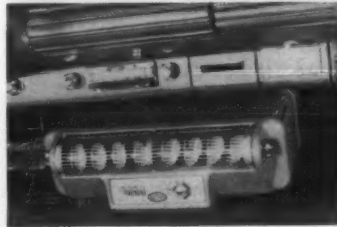
Haase said that an advantage the Novi unit offers refrigera-

tion and air conditioning dealers is that they need not carry a heavy inventory. Selling from a demonstrator in their own car, they can order units from their nearest Novi branch.

Shipment is made from one of five regional warehouses located in Detroit, Atlanta, Kansas City, Fort Worth, and Los Angeles.

Dealers are trained in installation at factory branches and can call on the assistance of a regional service engineer.

Novi also makes a truck cab air conditioner with three-row condenser mounted on the cab roof and evaporator under dash. Other features are the same as for the auto air conditioner.



COMPACTNESS of Novi's under-dash model automobile air conditioner is shown here. It measures only 6 7/8 in. high.

According to Beulah Proctor, assistant secretary and treasurer of Novi Equipment, the company is now in the process of constructing six branches specifically designed to handle auto air conditioning.

Negotiations are currently under way, she said, for 11 new buildings in various other cities.



ALL PARTS of the air conditioner are spread out on a long table awaiting installation. They come packaged in the four cartons on the hand truck. Al Pawlowski holds five-bladed fan that is part of kit. Sam Nuckells prepares car for installation. Sponge rubber pads protect car finish.

Choose BOHN Refrigeration Units

Precision-designed and performance-proven to solve your refrigerating problems... efficiently... economically

LOW TEMPERATURE UNITS

All feature Bohn's unique, hermetically-sealed automatic defrost system... eliminates extra wiring, extra piping, costly control valves. All with grained aluminum cabinets, rust-proof fittings, life-lubricated motors.



MODEL LC Unit Cooler
For large walk-ins. 6000 to 24,000 BTU/hr. cap. at 10° T. D.



MODEL LM Mullion Lo-Temp
For upright freezers. 1400 and 1900 BTU/hr. cap. at 10° T. D.



MODEL LR Unit Cooler
For reach-ins and small walk-ins. 1000 to 1900 BTU/hr. cap. at 10° T. D.

STANDARD COOLER UNITS

Compact units, all with practical built-in Bohn features, rust-proof fittings and life-lubricated motors, housed in long-life, grained aluminum cabinets. Simple to install, fully tested and warranted.



MODEL HR Half Round
For walk-in coolers. 2600 to 10,800 BTU/hr. capacity at 10° T. D.



MODEL C
For reach-ins. 1000 to 3000 BTU/hr. capacity at 10° T. D.



MODEL UC Unit Cooler
For walk-in coolers. 2600 to 20,000 BTU/hr. capacity at 10° T. D.



MODEL U
For small applications. 850 to 1500 BTU/hr. capacity at 10° T. D.



MODEL UM Mullion Unit
For reach-ins and dough retarders. 1300 to 2300 BTU/hr. capacity at 10° T. D.

MODEL D
For beverage boxes and back bars. 1300 to 2300 BTU/hr. capacity at 10° T. D.



Buy the known line... the BOHN line

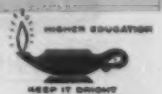
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AROUND THE WORLD IN 50 DAYS

"Inside Dope"
by GEORGE F.
TAUBENECK



(Concluded from Page 1, Col. 1) happen when a Labor Party achieves many of its political goals.

Approximately 90% of its wage and salary earners are at the mercy of a government arbitration system in this "advanced" labor-union-dominated country.

In other words, they can't and don't bargain collectively.

All labor disputes are settled in court. Decisions by state or federal tribunals are binding on both labor and management. And penalties are provided by law to compel compliance with arbitration decisions.

The Australian system has tended to widen the gap between rank-and-file members and labor union bosses. Inasmuch as disputes are settled by a government agency, union members apparently see less and less reason for paying dues.

Nevertheless, approximately 70% of this country's wage and salaried earners belong to unions of one sort or another. To attain a similar proportional strength, U. S. union membership would have to total 46 million people. At present only 18.5 million American workers are union members.

Labor in Australia has its own political party which operates under that label. Said Labor Party controls governments in three of Australia's six states—New South Wales, Western Australia, and Tasmania.

Visitors to Australia encounter numerous—and sometimes startling—examples of Union

dominance of the economic scene here. For instance, a waitress casually brings total strangers to your already crowded table. The waitresses' union decrees: "It's easier for us to wait on more people this way."

Even bank officials have a union of their own to negotiate working conditions with Directors! In a "labor catalog," the Bank Officers Association of Australia is listed alphabetically just ahead of the Blacksmith's Society.

Engineers, architects, draftsmen, theater managers, railway officials, doctors, lawyers, jockeys, hospital superintendents, and numerous other professional and managerial people are unionized in Australia.

Theoretically, labor courts can step in only after a dispute has occurred. Practically, ALL such disputes go to court—whereupon:

Every employer and employee

represented in this wrangle is compelled to comply with a judge's verdict.

Labor people seem to be more critical of compulsory arbitration than are company officials. Management likes the stability it provides. Actually, they say, it seems fair to have a system whereby an independent judge makes an impartial decision on a labor question.

"I've had it both ways, under the compulsory arbitration system and under the negotiation system where you bargained with a union for months to reach an agreement," remarks a top Australian business executive.

"I prefer the arbitration system."

How's That Again?

Australia has a remarkably distinct and original vocabulary of verbal expressions. Some of

them are imported and some hybrid, but most are highly original. Surprising examples:

"Leary" is a hybrid—having different meaning in Australia than it does in the United States. Over here it means hesitant, or a bit wary; down there it means vulgar, or low.

"Good-o" is the Australian equivalent for "O.K."—meaning agreement, or acquiescence, or confirmation. Scarcely a conversation passes without "good-o" being uttered. The same can be said for "too right," which also means "I agree."

To say that a man has "gone crook" or "got off his bike" is to intimate that he has lost his temper, or is "on the muscle" (American).

But if you say that a man is a "mental" in Australia, you won't be inferring that he is a genius. On the contrary, a "mental" down there is a "nut," a psychopathic case.

To American commercial travelers in Australia: Watch your language, man!

Glossary of Australian Slang Expressions

Additional Aussie "special talk" you should know about when dealing with these vigorous people:

Did his block: Blew his top; went off his rocker.

Bonza: magnificent; great.

Bloody: very; used for emphasis; equates with damn or goddam. "When I got the bloody car into the bloody traffic the bloody engine conked out on me." Bloody is known as "the great Australian adjective." A sunset can be bloody beautiful; or a woman; or a symphony.

Mug: the worst thing you can call an Australian. I don't know why.

Bodgies: teenage hoodlums (male).

Widgies: teenage hoodlums (female).

Cobber: a close friend; a great guy.

Blake: any man.

Fair dinkum: honestly. "I'll pay that bet; fair dinkum, I will."

Crook: bad. "I feel crook"—("I don't feel well"). "I feel crook inside"—("My stomach's upset").

Vetted: inspected, approved. "The editor vetted the copy before sending it along."

A blue: a wrangle; a hassle; verbal exchange. "We had a blue."

Comper: master of ceremonies. Also used as verb. "He compered the quiz program."

Ratbag: a loathsome person. Almost as bad as a "larrikin" or "mug."

Whingers: complainers. Also verb. "He whinged about his job."

Careered: careened. "The truck careered down the street." This is not a typo.

Good on you: "good for you."

Shout: to treat, usually to a drink. "A school was shouting drinks at the bar." Meaning: men were buying drinks for one another, in turn. There's a firm etiquette involved.

Don't come the raw prawn on me: Don't give me that guff; don't try to pull my leg.

MATCHING PENCIL POINTS WITH COMPETITION WILL NEVER MAKE A PROFIT!

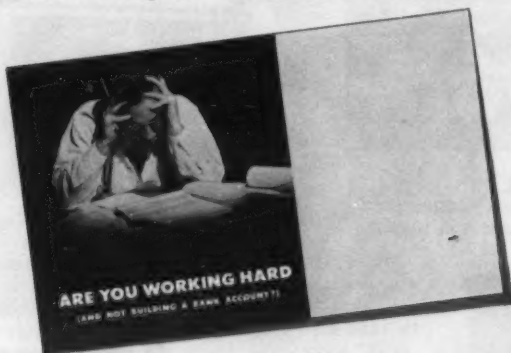
Any sale which hinges on price alone is not apt to put money in your bank account.

If you feel that the line of equipment you are carrying can be sold only by beating somebody else's price, then you should investigate the remedy offered by Stewart-Warner. This stable, successful organization is built on the premise that its dealers must make money!

As a Stewart-Warner dealer you can avoid the pitfalls which trap and destroy profits. You have a complete "One source" line of

heating and cooling equipment on an Exclusive Franchise basis. It's a line which can be demonstrated to be of superior quality in every respect. The sales and installation methods developed by Stewart-Warner steer you out of the price competition rut—enable you to make a legitimate profit on every sale.

Why not get all the details—there's no obligation. Write today for a complete explanation of the Stewart-Warner Franchise.



In this folder are the facts which show why the Stewart-Warner Franchise will enable you to recover vanishing profits. You owe it to yourself and your future prosperity to send for your copy today.

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ALEMITE Industrial and Automotive Lubrication Equipment, Lubricants and Chemicals, such as CD-2, KLEEN-TREET and COOLING SYSTEM CONDITIONER • STEWART-WARNER Electronics Equipment and Systems, Commercial and Military • BASSICK Casters, Wheels and other Materials Handling Devices, Flo-Tilt Office Chair Controls • STEWART-WARNER Speedometers and other Automotive, Industrial and Marine Instruments • SOUTH WIND Aviation Heat Exchange Products and Instant Automotive Heaters and Minit Heater • STEWART-WARNER SAF-AIRE and WINKLER Heating and Air Conditioning Equipment • STEWART Die Castings • HOBBS Electric Hour Meters • BASSICK-SACK Furniture Hardware.

All of above trade names are the property of Stewart-Warner Corporation

RSES News

Michigan College 'Makes History' as Refrigeration Students Form Chapter

By Frank J. Versagi

BIG RAPIDS, Mich. — The first student chapter in the history of Refrigeration Service Engineers Society was presented its charter recently at the Refrigeration and Air Conditioning Dept., Trade and Industrial Div. of Ferris Institute here.

Milton O. Larson, International Director of RSES Region 7, presented the charter in what he called a "history-making event" and a "tribute to the efforts of Harry Bentz, head of the refrigeration department."

Refrigeration students at Ferris, a state college offering two school-year courses in trades as well as degree courses in other fields, actually organized their own chapter patterned after RSES. They operated the chapter independently for over a year while Bentz and interested industry personnel worked with RSES to establish the conditions for formal recognition of the group.

RSES CONSTITUTION MODIFIED SLIGHTLY

According to Larson, "slight modifications" were made in the RSES constitution to allow the association of "a completely student-organized, student-operated chapter."

Bentz pointed out that the students will pay the regular membership dues to the parent organization, although the initiation fee has been lowered for them. Upon completion of the course at Ferris and upon entry into refrigeration or air conditioning employment, the student members will automatically become full members of RSES without payment of additional initiation.

As members of the student chapter, each student receives a "letter of membership" rather than the usual membership card. While the chapter will receive normal mailings which go to RSES members — society periodicals and the Study Course — the student chapter cannot vote in Society affairs. The student group holds meetings twice a month.

William Kjergaard, president of the student chapter, accepted the charter from the International Director. Other officers of the chapter are: Melvin Lockwood, vice president; Leroy Shoemaker, secretary; Allen Baird, treasurer; and Theodore Ross, educational chairman.

William Anderson, refrigeration instructor, is adviser to the group.

'NEED COOPERATION WITH INDUSTRY'

Pointing out the necessity for cooperation between education and industry, Milton J. Kelly, professor of law and toastmaster at the presentation, praised "those representatives of industry who are here tonight proving to these young people that someone cares about the work they are doing."

Kelly then introduced Mrs. Ila Harris Unseld, general manager Harris Supply, Grand

Rapids; J. H. Coolidge, president Sherer-Gillett, Marshall; and Charles Martin, president Ranney Refrigerator Co., Greenville—all of Michigan.

Sherer-Gillett offers one Marshall senior each year a scholarship to the refrigeration school at Ferris, and the other industrial representatives offer "moral support and tangible aid" according to one officer of the school.

Mrs. Unseld, an officer in Air Conditioning and Refrigeration Wholesalers, considered it significant "that students still in school, have had the foresight to associate with an important society with the thought of continuing their education."



Harry Bentz, head of refrigeration department at Ferris Institute, holds the new charter while faculty and business visitors pose with him. Left to right: Jon P. Adams, dean Trade and Industrial Div.; J. Morgan Johnson, education director, Greer Shop Training, Chicago; William Anderson, refrigeration instructor; Tom Dougherty, sheet metal instructor; William Kjergaard, president of new student chapter; Milton O. Larson, RSES International Director; Bentz; Charles Martin, president Ranney Refrigerator Co.; Richard Wendt, former Ferris student; J. H. Coolidge, president Sherer-Gillett; Mrs. Ila Harris Unseld, general manager Harris Supply; Richard Bayne, past president of student chapter before affiliation with RSES; Victor F. Spathelf, Ferris president.

PROUDLY displaying their charter are the members of the first student chapter to become associated with RSES. Front: Myron Canning, St. Johns; Allen Baird, Alma; William Kjergaard, Frankfort, president; Melvin Lockwood, Lansing; Leroy Shoemaker, Dimondale. Rear: Robert Holmes, Alma; Garry Carver, Romeo; Kenneth Geiman, Marshall; Jim Wright, Nappanee, Ind.; Aldon Balcum, St. Johns; Douglas Staley, Houghton Lake; Ted Ross, Manistee.



Series 272 and 1272 single function control available for either low or high pressure. Also temperature models.

Series 273 and 1273 dual function control. Lockout and manual reset available for either low or high pressure cut-out. Also temperature models.

EACH IS 2 SWITCHES IN 1
YET YOU PAY NO PREMIUMLOOK AT THESE ELECTRICAL RATINGS
SERIES 272, 273 PRESSURE CONTROLS
without external adjusting knobs

Motor Ratings	Single Phase			Two and Three Phase			
	115 V.	208 V.	230 V.	208 V.	230 V.	440 V.	550 V.
A.C. Full Load Amps.	18.4	13.8	12	3 H.P.	3 H.P.	3 H.P.	3 H.P.
A.C. Locked Rotor Amps.	110.4	82.8	72				
D.C. Full Load Amps.	4.6	—	2.3	—	—	—	—
D.C. Locked Rotor Amps.	46	—	23	—	—	—	—
A.C. Non-Ind. Amps.	24	24	24	—	—	—	—
D.C. Non-Ind. Amps.	3	—	0.5	—	—	—	—
Pilot Duty — 125 VA.; 115 to 600 V. A.C.							
57.5 VA.; 115 to 600 V. D.C.							

SERIES 1272, 1273 PRESSURE CONTROLS
Single or dual function

Motor Ratings	Single Phase			Two and Three Phase			
	115 V.	208 V.	230 V.	208 V.	230 V.	440 V.	550 V.
A.C. Full Load Amps.	24	24	24	16	15	7.5	6
A.C. Locked Rotor Amps.	144	144	144	96	90	45	36
D.C. Full Load Amps.	4.6	—	2.3	—	—	—	—
D.C. Locked Rotor Amps.	46	—	23	—	—	—	—
A.C. Non-Ind. Amps.	24	24	24	—	—	—	—
D.C. Non-Ind. Amps.	3	—	0.5	—	—	—	—
Pilot Duty — 125 VA.; 115 to 600 V. A.C.							
57.5 VA.; 115 to 600 V. D.C.							

Penn 2-pole refrigeration controls handle polyphase motors without the use of magnetic starters

Here's real application versatility and advantages. With these controls, cost of contactor is eliminated if motor has built-in overload protection. If motor requires external overload protection, the motor starter can be replaced by the more economical "manual starter." So... in either case, these Penn controls save you money!

With their two separate circuits, each control is really 2 switches in 1. Two separate load circuits can be controlled. When wired as a 2-pole switch in single phase circuits, it always breaks the "hot" line. On 3-wire, single phase A.C. systems, it can control simultaneously a 230 volt compressor motor and a 115 volt fan motor, solenoid valve or other device.

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PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

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F. M. COCKRELL, Founder

'The Conscience of the Industry'

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VOLUME 84, No. 3, SERIAL No. 1,521, MAY 19, 1958

quently rake in big dough without contributing much to the advancement of an industry.

Associations of engineers, jobbers, etc., are worthy and useful in themselves. But they wouldn't dream of going into the manufacturing business as associations. Why, then, do they become publishers? Like manufacturing, publishing requires not only substantial capital investment, but experienced and highly trained professional skills.

Committees of jobbers or engineers per se don't have these publishing skills, obviously.

Respectable associations don't "put the bite on advertisers" to pay their operational expenses. They're too proud to indulge in racketeering of any sort.

Advertising in "amateur" publications not only is a waste of money, but degrades both the advertising and publishing professions. Who will bell the cat?

A unique "weapon system" with which the Russians confront us is the Soviet All Union Institute of Scientific and Technical Information. With a staff of 2,300 specialists, supplemented by 20,000 students and engineers who act as part-time translators and abstractors, its function is to make available to the entire Soviet technical community information from 10,000 trade journals published in 80 countries.—*Missiles & Rockets*.

Religion is the best guarantee against delinquency. Crime doesn't pray.—GLENN R. BERNHARDT.

Handy Way to Subscribe**To See the Industry in Action EVERY WEEK**

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on residential, commercial, and industrial air conditioning, heating, and refrigeration for contractors, dealers, consulting engineers, distributors, servicemen, and manufacturers. Read the industry's only newspaper every week—you'll profit by it—only \$6.00 per year, 52 issues (U.S. and Canada). Foreign: \$10 per year.

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Associations Should Stick To Their Knitting

GENUINE PROFESSIONALS in any field of endeavor take one of three attitudes toward amateur dilettantes:

- (1) Cooperative helpfulness, plus free teaching;
- (2) Amused tolerance;
- (3) Grim opposition—particularly when so-called amateurs mislead the public, or lower the standards of a profession.

Examples of No. 1 are best seen when successful adults work with young people, and start them out to "fly right." Baseball stars visit high school teams, and give tips on batting and fielding. Professional football players often coach kid clubs (and get a big kick out of it).

Among the most admirable of these professionals-helping-amateurs phenomena are the Junior Achievement and Big Brother movements. In the former, successful businessmen help teen-agers establish small business enterprises of their own (the kids sell stock in the company, produce a gadget, merchandise it—everything that a big Free Enterprise corporation does).

In the Big Brother movement good men take bad boys, treat them like sons, and make proud American citizens out of them.

All these endeavors, you'll note, involve professional men on one hand, and juvenile amateurs on the other.

It's in the area of adult relationships between professionals and amateurs that attitudes Two and Three occur. A big leaguer watching an office picnic baseball game (Married Men vs. Single Men) might display amused tolerance. Likewise, a professional advertising man listening to female cocktail party conversation about advertising techniques.

Implacably grim opposition enters the scene when a demagogic politician spouts off ignorantly about scientific principles, or when "witch-doctors" invade the field of economics, say.

Even worse opprobrium is reserved for those "amateurs" who debase a profession by making a "racket" out of it for themselves. Doctors grow livid about quacks, lawyers about shyster ambulance-chasers, finance companies about loan sharks. . . .

There are similar termites in the publishing field. Sometimes it is difficult for honest professionals to retain an attitude of amused

tolerance toward even the "worthy cause" publishing offenders.

You see, the latter not only come close to being rackets *per se*, but open the gates for racketeers. The so-called "worthy cause" advertising solicitations are many—and nearly all are worthless, from an advertising value standpoint.

First, there is unproductive advertising in printed programs—for everything from a high school play to the Ladies Auxiliary Afternoon Musical. Next come Labor propaganda "newspapers" . . . and, finally, there are some association magazines which really don't deserve advertising "support," either.

Some of the latter make legitimate independent publishers see red, for several reasons:

- (1) Advertising is sold too often on a "blackjack" or "charity" basis;
- (2) These publications present few positive values to readers and advertisers;
- (3) Unlike a legitimate business publication, they pay no corporate income taxes.

Their very existence often is based on a false premise, to wit: "advertising is a social waste."

Too many sheltered technicians and academicians tend to feel, perhaps subconsciously, that advertising and selling expenses are frills. *Theirs* is the important work. Promotion is a lot of fol-de-rol performed by their intellectual inferiors. Madison Avenue? Phooey!

So it happens occasionally that some longhair suggests they can cut their own dues, pay association headquarters expenses, set up funds for research, etc., by issuing a magazine. "Just put the bite on manufacturers—and we're in clover."

They get, away with it too, in a small way—but usually at a price.

Manufacturers who realize that advertising has HONEST values hate having "the slug put on 'em." Legitimate publishers, who could help these associations achieve their true goals, become indifferent or even antagonistic.

Only big gainers are the men who sell advertising in these amateurish publications. Thanks to avoidance of the 52% corporate income tax, and to the fact that association members have been known to "blackjack" their own advertising departments, such salesmen (nice chaps, all, incidentally) fre-

You Asked About It

From the many requests for information it receives, the News will select and publish some of general interest. In many instances, the answers will be supplied by authorities in the industry.

Q. In leak testing, it is common practice to build up the refrigerant pressure with some inert gas like nitrogen to make detection easier. Yet, according to the law of partial pressures, each gas in a mixture of gases exerts its own pressure independently from any other gas present.

Thus, if I had refrigerant at 7 p.s.i. and added nitrogen at 150 p.s.i. the total pressure would be 157 p.s.i. While I can see how this total pressure would make leak testing easier when using a soap bubble test, I can't see how it will help in either a halide torch or electronic leak test, since the refrigerant is still only exerting the original 7 p.s.i.

A. J.—Howard, S. D.

A. Considering Dalton's law of partial pressures by itself, we cannot explain the increased efficiency of leak detection when an inert gas is used to build up pressure, for it is true that in such a case the refrigerant pressure remains the same as it was before the addition of the inert gas.

Yet, there is no doubt that the system works for it is used every day.

The apparent difficulty arises because the laws of science are attempts to explain parts of the behavior of the things about us. To the extent that we separate happenings into separate parts in order to study and discuss them, to that extent we create artificial situations which do not exist in nature.

In our gas-refrigerant mixture, for example, the mixture not only is obeying Dalton's law; at the same time it is obeying or disobeying a multitude of laws—having to do with temperatures, pressures, gravity, momentum, statistics. The point is that when we say of a gas that it is following some law or other, we are picking out just one portion of all that the gas is doing.

So in a mixture of refrigerant and inert gas, Dalton's law of partial pressures is only one law which the mixture is following at a given moment. And by

itself this law would not explain the better leak detection we get when an inert gas is added to increase total pressure in the container.

The total amount of a gas which leaks through a hole, however, does depend on total pressure.

Assume that we had only nitrogen in a container with a small leak. At a given pressure this gas would escape at a specific rate. If the pressure is increased, the amount of leakage will increase.

This is logical, but what happens when there are two gases in an enclosure?

If just refrigerant at a low pressure is in a container, it will leak at a certain rate. When

nitrogen is added, the total amount of both gases escaping will increase. That is, even though the refrigerant is still exerting only its own pressure, the total pressure on the opening is greater, therefore more gas will come out. And since part of the mixture is refrigerant, more of it will escape than did when the refrigerant alone was in the container we are using.

In partial pressures, we're talking only pressures; in the leak detection we're talking total amount of gas reacting to total pressure. That is why leak detection is aided by increasing total pressure with an inert gas. In fact, in non-refrigerant leak detection (as when a manufactured container is to be tested for leaks, the halogenated refrigerants are added in small amounts as tracer gases to air or some other inert gas used for actually building up the pressure.

Devor Again Heads Wagner Officer Slate

ST. LOUIS—J. H. Devor was re-elected president of Wagner Electric Corp. at the board of directors meeting. H. N. Felton continues as vice president-sales, E. G. Holtzman, secretary-treasurer, J. C. Evans, controller, and J. P. Harbacek, assistant secretary and assistant treasurer.

G. W. Brown, vice president since 1954, was elected executive vice president. He was in charge of engineering and research.

New vice presidents are Paul C. Ford, taking over from Brown in engineering and research, and R. H. Hackett, in charge of manufacturing. Ford was executive engineer of the automotive and electrical engineering and research facilities and Hackett general superintendent of manufacturing.

Indianapolis ASRE Hears 'Heat Pump Potentials'

INDIANAPOLIS — Tour of Rex Mfg. Co. (Philco) air conditioning, refrigerator, and freezer plant in Connersville, Ind. constituted a recent meeting of local section American Society of Refrigerating Engineers.

Following meeting featured a talk on "Utilities' Views on Heat Pump Potentials" by J. H. K. Shannahan of Ft. Wayne, commercial manager of Indiana-Michigan Electric Co.

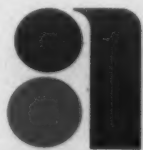
Shannahan told local ASRE members the electric utilities "should really be interested in heat pumps and electric heating" due to the trend toward peak summer loads. Their use, he said, would help level the load and the increased generator capacity would prevent summer overloads of electrical generating equipment.

NEWS ITEM: A COMPLETE NEW LINE OF ANSUL PACKAGED REFRIGERANTS IS NOW AVAILABLE. YOUR ANSUL WHOLESALER HAS "FREON-12", "FREON-114", AND SULFUR DIOXIDE IN ONE POUND DISPOSABLE CANS AND "FREON-22" AND METHYL CHLORIDE IN TWO POUND CONTAINERS.



PEOPLE MAKE THE DIFFERENCE BETWEEN PRODUCTS

There's a difference in refrigerants, but it's a difference that doesn't really have much to do with specifications or chemical gobbledegook. The real difference is service—the people who go with the refrigerants. When you buy any Ansul refrigeration product you are getting more than a guaranteed top quality product. You are also getting the help of people who care about your personal refrigeration problems . . . people who are willing and able to help solve them in a creative, imaginative way. We invite you to use our people.



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To Do Job Right

Watch All Heat Gain Sources When Calculating Cooling Loads

Florida School Points Out Heat Producers You Might Overlook

ST. PETERSBURG, Fla.—A simple, accurate method of estimating cooling loads for air conditioning equipment was described by Lamar King, Trane Co. representative in this area, at an educational clinic session here recently.

The session was part of a 13-week "school" intended to teach the basics of air conditioning to contractors, engineers, installation and service personnel, consulting engineers, and architects. Aim is to improve the level of competition so that air conditioning will be a profitable business for all. (See story in March 24 issue of NEWS).

King conducted this session along with A. J. L. Moritz, Trane state representative for self-contained products.

Determine Design Temperature Difference

In brief, King pointed out that the first step in determining this cooling load is to determine the highest acceptable indoor temperature and the highest normal outdoor temperature.

These are known as design temperatures and the difference between them is the design temperature difference.

"Once the design temperature difference is known," he said, "calculating the amount of cooling needed is relatively simple."

The job is to counteract the heat gains, both internal and external, to keep the human body comfortable. Any combination of dry-bulb temperature and relative humidity condition obtained within the comfort zone are equally comfortable to most people, he noted.

External heat gains that must be overcome are conduction, solar, ventilation, and infiltration. Integral heat gains include such items as the occupants, lighting, food and cooking, motors, appliances, and duct gains.

Conduction heat gains—the amount of heat that passes through the walls, ceiling, windows, etc., varies according to the type of material in the partition and the temperature differential. They can be calculated by applying the "U" factor. The "U" factor can be found in many available air conditioning manuals published by manufacturers or air conditioning associations.

Heat Gains from Non-Cooled Areas

In addition to outside partitions, heat gains from non-air conditioned indoor areas should also be considered. It is common practice, when the design temperature differential is 15° to use a 10° temperature differential for walls separating conditioned from non-conditioned areas.

Windows and outside doors are considered separately in conduction calculations.

Conduction heat does not include the heat gained directly

from the sun, King pointed out. This is calculated separately. Solar heat gain, which affects only those surfaces exposed to the sun, is very intense. In some cases it may amount to as much as half the total heat gain, he said.

And, important to heat gain calculations, it may not occur at the same time as other maximum heat gains. This affects selection of size of equipment, because the capacity of refrigeration equipment must be based on maximum simultaneous loads.

Amount of radiant heat from

the sun transmitted will vary according to the color of the walls, the angle the sun hits the wall surface, and the amount of shading available.

Contrary to what might be expected, the south walls of a building at the equator will transmit less radiant heat than the same walls of a building in Minneapolis.

This is because the amount of heat absorbed depends on the angle the sun's rays hit the surface. At the equator, with the sun directly overhead, there would be no solar gain through the south wall. But at 45° lati-

tude, with the sun's heat hitting the wall at that angle, more would penetrate. The roof would be something else again.

Solar heat transmission values are also found in air conditioning manuals.

Heat absorbing glass, King said, can reduce solar heat transmission by about 40%. Double or triple glazed windows don't reduce excess solar heat gain by any appreciable extent. Neither do glass blocks, though they do an excellent job of reducing conduction heat gain, he added.

If a roof is sprayed or flooded, excess solar heat gain through the roof can be ignored, though the conduction gain should be figured in the usual manner, he noted.

With proper ventilation, air temperature in an attic space can be assumed to be 20° F. above outside design temperature, he stated. In this case the U factor should be selected for

ceiling only and the roof disregarded.

The solar heat gain, using the higher U factor, would also be for ceiling only and not for combined ceiling and roof.

If the attic space is not ventilated, the over-all U factor for figuring roof and ceiling structure should be used and temperature difference be selected from the proper solar heat gain table.

Discusses Interior Loads

Turning to interior loads, King noted that the human body normally produces more heat than it needs to keep body temperature at 98.6° F. The excess is transmitted to the air in the form of sensible and latent heat. The amount varies according to the size, sex, clothing worn, and degree of activity. These have been computed and are set down in tables.

Lights, too, give off heat. In

The LENNOX perfected

The secret is in the simplicity and soundness of the controls

Take the defrost control, for example. It's positive and foolproof—operates on temperature differential instead of complicated air switches or timing devices. It incorporates a positive simple source for sensing frost and for turning the heat pump back on when frost has been eliminated.

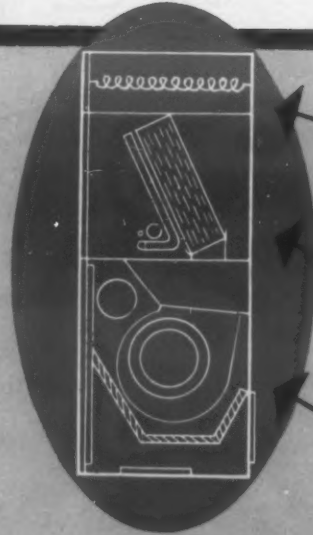
The simple and exclusive Lennox "sequencer" control for the resistance strip heaters positively paces the starts of each 4 or 6 kw strip. "Sequencer" prevents simultaneous electric load caused by compressor and heat strip starting at the same time.

The compressor is not just a standard unit with reversing valves. Compressor as well as both indoor and outdoor coils are of special design for heat pump work. Your assurance of longest practical compressor life and minimum service problems.

These are a few of the features that enable Lennox to produce the highest C.O.P.*—higher than any other prominent make on the market!



* Coefficient of Performance: heat output per input watt.



BOOSTER HEATING SECTION
For extra heating capacity in colder areas. Series of 4 or 6 kw "strips"—tailored to installation requirement—controlled by exclusive "sequencer."

INDOOR COIL SECTION
Maximum heat transfer capacity produces more heating as well as excellent cooling and dehumidification.

BLOWER-FILTER SECTION
Quietest blower in the industry... combined with exclusive hammock filter. Automatic 2-speed motor control available where needed. More air volume delivered with reduced horsepower.

ALSO AVAILABLE IN DOWN-FLOW AND HORIZONTAL FLOW MODELS

fact, he smiled, a 125-watt bulb gives off about as much heat as an office secretary.

Incandescent lights give off an average of 3.4 B.t.u. of sensible heat per watt. When figuring heat gain for fluorescent fixtures multiply by a factor of 1.2 to allow for additional heat generated by the power being consumed and the ballast. In other words, add 20% to the wattage of the fluorescent tube. If the fixture is ventilated or recessed, this factor need not be applied, he said.

Electric motors and the machinery they drive add sensible heat to the space in which they are located. If both are located in the conditioned space, they add a total of 3.4 B.t.u. per watt of electrical energy consumed.

Small motors, he stated, are less efficient than large motors. They use more electrical energy per horsepower.

For instance, a $\frac{1}{2}$ -hp. motor uses up two-thirds of the elec-

trical energy it tries to convert to mechanical energy. A 5-hp. motor wastes only 15% of the energy.

An average heat gain of 3,600 B.t.u. per horsepower is used for smaller motors and 3,000 B.t.u. per horsepower for motors 3 hp. and larger. This amounts to a quarter ton of refrigeration per horsepower to counteract this heat, he noted.

Heat of compression in reciprocating compressors should never be added to heat gain calculations. This load has already been taken into consideration in arriving at the capacity of the compressor.

In figuring heat gain from a compressor motor, figure only heat gain from the motor itself. No heat gain need be calculated, regardless of motor size, if forced air over the compressor section carries away motor heat or if the motor is hermetically sealed in the compressor, King declared.

Fans add sensible heat by friction to the air stream. If a fan motor is installed in the air stream, heat of the motor must be added to air in proportion to the size and efficiency of the motor.

Accepted practice, he said, is to figure 1 hp. of fan motor will be needed for every 3,000 c.f.m. of total air supplied.

In calculating for a restaurant, if the heat of the kitchen is not considered, the latent and sensible heat of the food served in the dining room must be considered separately. Each serving will add 300 B.t.u. of sensible heat and 30 B.t.u. of latent heat, as a rule of thumb.

If cooking equipment is hooded and equipped with an exhaust fan, half of their heat gain can be omitted from calculations, King indicated.

Ducts passing through unconditioned areas provide another source of heat gain, for heat picked up in the ductwork must

be cooled by the cooling coil as well as the heat in the conditioned areas.

If supply or return ducts must run through unusually warm areas, he suggested, they should be thoroughly insulated with 1 or 2 in. of insulation. In the average installation, heat gain through ducts is approximately 5% of total heat gain.

If ducts are located in the conditioned areas, no heat gain need be figured.

Insulating the ductwork was recommended by King. He said it is much cheaper to insulate the ducts than provide larger size cooling equipment. Insulation is also necessary in many cases to prevent water damage from condensate or sweating which would otherwise form on cold supply ducts.

Figuring Infiltration Losses

For figuring infiltration losses around windows and doors, King recommended the air

change method of calculation over the crack method. It is quicker and more accurate, he claims.

Rooms with windows and doors in one wall will normally have one air change per hour. Rooms with exposures in three or more walls will have two air changes per hour.

Never depend on infiltration to provide necessary ventilation, he warned. On still days, infiltration can drop to zero. However, if air is exhausted under positive pressure from rooms such as kitchens and rest rooms, a more constant rate of infiltration will be established.

Whenever practical, it is best to introduce ventilation air through the air conditioning equipment, he said. This will put a positive pressure on the conditioned space and will force outward filtration.

This will not only eliminate any calculation for infiltration, but will also eliminate the dust, fumes, and odors that come with infiltration.

Ventilating through the air conditioning equipment permits filtering the air and actually increases the efficiency of the air conditioning equipment, reducing slightly the amount of air that must be circulated.

Pressurizing a Room

"To pressurize a room properly, the amount of air introduced should seldom be less than one air change per hour," he noted. "In all cases, it must be greater than the total infiltration rate, plus the positive exhaust rate in restrooms, kitchens, etc."

"If a room can be pressurized without introducing enough outside air to meet the c.f.m. approximate ventilation requirements, then the ventilation rate should be increased to meet the requirements. The positive exhaust should be increased accordingly," he advised.

He added that positive ventilation should be provided wherever possible. Because latent heat must be removed from ventilation air as well as sensible heat, wet-bulb temperature should be used in calculations rather than dry-bulb temperature. This can be found on a psychrometric chart.

By dividing the combined ventilation load and building load by 12,000 (which is the B.t.u. per ton of refrigeration) the size of equipment needed to do the cooling job is determined.

Leigh Products To Produce Air Control Units In Canada

COOPERSVILLE, Mich. — Leigh Metal Products, Ltd., London, Ont., Can., will soon start to produce the Air Control line of registers, grilles, and diffusers, it was announced by Air Control Products, Inc. here. The Canadian company has already started to manufacture Leigh Building Products, a complete line of metal building products.

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Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors.

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For your copy, clip this ad and mail with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

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NEW FROM THE
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heat pumps are the result of years of research. There was no attempt to market it until the problems were eliminated which had been inherent in heat pumps before.

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LENNOX Industries Inc.

Merchandising Dept.
Marshalltown, Iowa

Without obligation, let me have the complete facts about the Lennox heat pump.

Company.....

Address.....

City.....State.....

My Name.....

FOR MORE INFORMATION ON THE PRODUCTS DESCRIBED ON THIS PAGE

Write Directly to the Company—at the Address Given in the News Item



Refrigerator Takes Racks In, Through

A new style refrigerator that is placed on an existing floor, without recessing, so racks can be pushed in or pushed through, has been introduced by C. Schmidt Co., Dept. AC&RN, 1712 John St., Cincinnati 14.

Racks with capacity of 40 cafeteria trays are furnished with the refrigerator. Adjustable shelves are available for one or more sections in the three sizes.

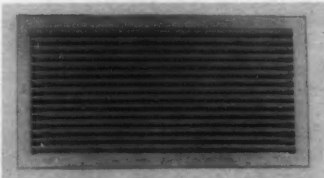
Develops Power-Operated Sliding Doors

A new line of power operated, horizontal sliding doors has been developed by Jamison Cold Storage Door Co., Dept. AC&RN, Hagerstown, Md.

New doors, known as "Electro-glide," are built to provide a positive seal not only at the edges, but at the top and bottom of the horizontal sliding doors. They have been designed to open and close quickly and tightly.



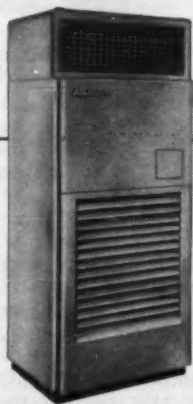
Diffusers Need No Baffles, Blank-Offs



A completely new line of square and rectangular air diffusers with

built-in vane and louver arrangements that provide versatility and air diffusion efficiency without baffles and blank-offs has been announced by Titus Mfg. Corp., Dept. AC&RN, Waterloo, Iowa.

Called Titus series "TMD" diffusers, these outlets are available in an almost unlimited variety of air patterns to suit nearly any space condition.



Model COM Commercial Air Conditioner 3 & 5 ton—Water & Air Cooled

Capitolaire

The complete line of

- Residential
- Commercial
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Air Conditioning Products



Model CF Flat Coil with Remote Air-Cooled Condensing Unit



Model VRS Fan-Coil Unit Summer Cooling—Winter Heating



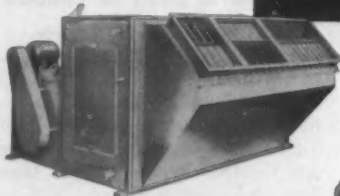
Model VER Fan-Coil Units 200, 300, 400, & 600 CFM



Model RES Residential Air Conditioner Air Cooled—3 & 5 ton



Model RES Residential Air Conditioner 3 & 5 ton Water Cooled



Flexazone Horizontal Model Air Conditioner for multi-room applications. CFM capacities from 1800 to 24,000. Vertical model available.



Model CWG Water Chiller 7½ thru 75 tons



Model AECR Air Conditioner with Built-in Evaporative Condenser 7½ thru 60 tons. Also available as water cooled.

See our display in Booths 269-271, Air Conditioning Refrigeration Exposition Chicago, Nov. 18-21



National-U.S. Radiator CORPORATION

HEATING AND AIR CONDITIONING DIVISION
Johnstown, Pennsylvania

Send to Marketing & Promotional Department for free bulletin on air conditioning equipment which interests you.

Packaged Gas-Fired Boilers Introduced

Completely packaged gas-fired boiler for hot water systems has been produced by Home Products Div., Rheem Mfg. Co., Dept. AC&RN, 7600 S. Kedzie Ave., Chicago 29.

All pumps, controls, and accessories have been placed inside the jacket.

New Rheem gas-fired packaged boiler is delivered to the installation location with all components assembled, connected, tested, and enclosed in an appliance-styled jacket 15½ in. wide and 39 in. high. Depth, depending on size in B.t.u. output, varies from 29 to 36 in.

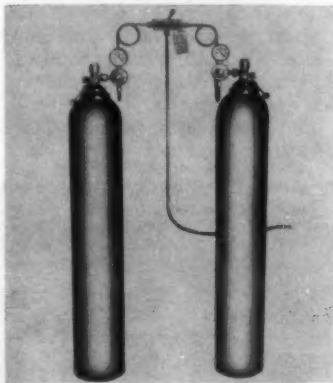


Change-Over Valve Is Manually Operated

A new manually operated change-over valve for CO₂ gas cylinders, which will render it unnecessary for the operator to change gas drums, has been developed by Hudson Products Co., Dept. AC&RN, 4400 St. Aubin Ave., Detroit 7.

Mounted on the wall between two cylinders, a flick of the small handle at the top of the valve, to right or left turns on a full cylinder, and in the same motion shuts off the empty.

The CO₂ gas delivery man then removes the empty and installs a full one on his regular round.



erants to attack some gasket materials.

Accopac AN-890 is made by a beater-saturated process.



Offers High-Density Asbestos Gasket

A high-density asbestos gasket material recently developed under the trade name "Accopac AN-890" now makes it possible for compressor manufacturers to get more efficient sealing of "Freon" refrigerants at a claimed saving of 15 to 30%, says manufacturer Armstrong Cork Co., Dept. AC&RN, Lancaster, Pa.

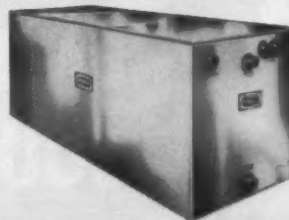
The new material was developed after tests to study the effects of elevated temperature and high-internal pressure and what is said to be the tendency of refrig-



FOR MOTOR OVERLOAD PROTECTION

MECHANICAL INDUSTRIES PRODUCTION COMPANY
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LATENT HEAT STORAGE FOR AIR CONDITIONING



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In Canada: Dole Refrigerating Products Limited, 44 Elgin St., Brantford, Ont.

Write for Engineering Catalog BAE

DEPENDABLE AIR CONDITIONING



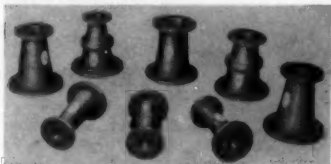


Develops Compact Electrostatic Filter

A new, small, compact, electrostatic air filter claimed to handle 800 c.f.m.—sufficient to take care of a normal-size house—has been designed by Radex Corp., Dept. AC&RN, 2076 Elston Ave., Chicago 14.

There is only one electrical connection to make to the blower motor plus two transmission ducts to fit the unit into the furnace or ductwork.

This unit does not require water or sewer connections and does not generate any ozone. It weighs 35 lbs.



Introduces Flexible Joint, Pipe Line

A complete line of high-quality rubber expansion joints and flexible pipe for use as flexible connections in pressure and vacuum systems has been announced by General Rubber Co., Dept. ACRN, Summit at Atwood Sts., Tenafly, N. J.

GRC pieces have given long, trouble-free life in many difficult corrosive and abrasive services involving acids, alkalis, organic solvents, and slurries. Flexing action keeps the rubber "alive," free from embrittlement and scale formation.

HELP WANTED?

I'm an expert with years of world wide experience. In fact, wherever refrigerators, freezers or air conditioners are repaired by smart businessmen, you'll find me. My name is Frankell's Hermetic Compressor Opener. I can open any shape compressor (up to 20" in dia.) regardless of the weld. And best of all, I take only two minutes of your time to do it! Or any one's time for that matter — I'm that easy to operate — No Gimicks! No Fixtures! No Jigs! Remember, when you open and repair a hermetic compressor, the profits are big. And just one hermetic job a week and I'm paid for in full. I'm recommended by the world's leading firms. These are just a few of my references: American Motors Corp., Kelvinator Div., Detroit, Mich.; Siemens, Erlanger, West Germany; Sealed Unit Parts, N.Y.C.; Tecmar-Carrier, Mariacibo, Venezuela; Jones Refrigerator Co., Raleigh, No. Carolina, and many more. I cost only \$695 net F.O.B. N.Y. or I can be rented monthly for an amazingly low cost. Write for complete information today. Write Dept. G Frankell Manufacturing Co., Inc., 1074 Home St., N.Y. 59, N.Y.

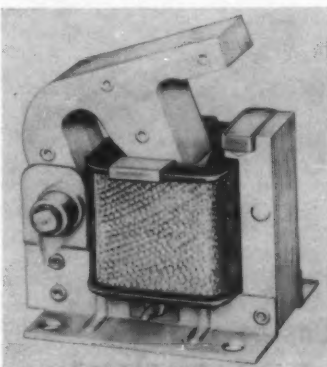
Export Facilities

Solenoid Offers 'Unlimited' Applications

"Rotosol," a new solenoid is claimed to offer unlimited application where split second rotary action is required. It is made by Roto Mfg. Co., Dept. AC&RN, 1030 W. Second St., Xenia, Ohio.

This simplified solenoid can operate in a minimum of space and the motion is delivered by the shaft rotating at the point of pivot. The shaft, Rotosol's only moving part, is hinged and held to one path, it was said.

In the Rotosol, used in air conditioning or refrigeration applications, rotary motion is direct and simple. This new design employs an F-shaped plunger that rotates about an axis perpendicular to the coil centerline. This development provides a wider arc of travel.



The action required may be obtained by direct attachment to either the shaft or the rotor.

'Measurflo' Control Adaptable for Dispensers

A new stainless steel "Mesurflo" control, adaptable to soft drink dispensing equipment, has been introduced by Turex Dispenser Co., Dept. AC&RN, Cleveland.

This stainless steel control is a new concept of how to control and maintain one set rate of fluid flow regardless of variable inlet pressures, it is claimed.

Air Conditioner Timer Can Be Plugged In

A new air conditioner timer, model "AC1-O Ti-mite" has been announced by Paragon Electric Co., Dept. AC&RN, Two Rivers, Wis.

New plug-in type AC1-O, specially designed for use with window air conditioners, is set like a clock and works on a 24-hour schedule.

It has completely automatic operation and does not operate during off occupancy periods.

AC1-O Ti-mite can be set to pre-cool the room in advance and

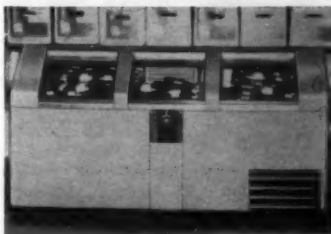


to turn off the air conditioner after normal occupancy hours. A manual "on" lever permits operation during automatic "off" periods.

Redesigns Compact Dry Bottle Cooler Line

Increased capacity, due largely to a more compact and efficient blower coil, highlights a redesigned line of dry bottle coolers from Nor-Lake, Inc., Dept. ACRN, Hudson, Wis.

Model SCP-6 was enlarged 2 in. in depth. This enlargement, coupled with the new blower coil, boosted capacity from 21 to 30 cases of 12-oz. bottles.



Are You Paying Premium Prices For Your Pipe Wrapping?



Now...cut costs, reduce inventories and profit more with the one standard insulation that fits every pipe and fitting, meets every service requirement!



NoDrip Tape means more profit, less work on every job... saves you time, labor, material. NoDrip Tape eliminates most multiple wrappings needed with thinner wraps... inferior wraps. Why pay more when you can buy the handy 16 foot roll of 1/4" thick NoDrip Tape at less than half the cost of a roll of ordinary 1/8" wrapping...and far below the cost of pre-formed foam cellular insulations?

Next time an equipment cold line job

calls for permanent protection against condensation drip, "sweating" or frost, insist on using NoDrip Tape. Stops rust and corrosion, too... holds temperatures more constant and increases the efficiency of the cooling equipment. NoDrip Tape is pliable, cork-filled and completely self-adhering. Easy to work with... forms an air-tight, 100% vapor and moisture proof jacket. Needs no tools, vapor seals, fasteners, brads or adhesives.

NO DRIP PLASTIC COATING... PROTECTION FOR BIG AREAS



For large pipes, tanks, air ducts, we recommend NoDrip Plastic Coating for permanent protection from condensation, rust and corrosion. Another fine Mortell refrigeration product, NoDrip can easily be applied by brush or trowel to metal, concrete, brick, plaster, tile or composition surfaces.

Easier to Apply... EVEN AROUND JOINTS, TEES, VALVES OR ANGLES



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O.K. I Send me full information about the complete line of Mortell refrigeration products.

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Makers of Mortell Caulking Cord and Mortell Caulking Gum

FOR MORE INFORMATION ON THE PRODUCTS DESCRIBED ON THIS PAGE

Write Directly to the Company—at the Address Given in the News Item

Air Conditioning & Refrigeration News, May 19, 1958

Offers Interlocking Masonry Cutter

An innovation for single-cutter masonry drills, an interlocking cutter has been produced by Tilden Tool Mfg. Co., Dept. AC&RN, 209 Los Molinos, San Clemente, Calif.



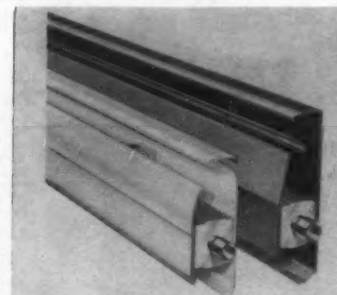
Made of sintered tungsten carbide, and molded specifically for masonry drilling, this cutter insures a stronger drill, will stand a higher degree of heat, minimizes the need for coolants, it is claimed.

Tilden auger point drills featuring this new interlocking design are available in sizes 1/4 through 1/2 in.

Motors Provide High Starting Torque

A new line of heavy-duty capacitor-start induction-run single-phase integral horsepower motors designed to provide high starting torque and operating efficiency has been announced by Fairbanks, Morse & Co., Dept. AC&RN, Fairbanks-Morse building, Chicago 5.

For starting, the new motors use claimed top-quality capacitors of the dry electrolytic type designed for maximum starting torque with minimum current usage. When the motor gains speed, a centrifugal switch cuts out the capacitors for straight induction run. The switch is designed with over-size snap-action contacts. They are easy to reach through the access cover and can be replaced.



Baseboard Heat Panels Developed

A complete new line of non-ferrous baseboard heating panels—featuring interchangeable components to suit a variety of installation needs—has been announced by Plumbing & Heating Div., American-Standard, Dept. ACRN, 40 W. 40th St., New York City 18. The new line—called "Heatrim"—replaces the existing line of American-Standard baseboard panels of the same name.

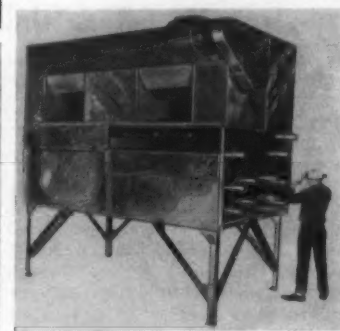
Two enclosures, two high-capacity finned-tube elements, and complete matching accessories are offered in the new line.

Elements may be used with either of the new enclosures, creating four different Heatrim combinations to suit a variety of installation requirements, the announcement said.

Motorized Valves Come In 2 Sizes

Recently announced is availability of new 3/4 and 1-in. motorized valves for use as zone control valves for hot water heating systems by Edwards Engineering Corp., Dept. AC&RN, 101 Alexander Ave., Pompton Plains, N. J.

Using a motor drive 75 times more powerful than a clock motor, the new valves operate quickly and quietly to provide comfort conditions throughout split-level and rambling ranch dwellings as well as multi-zoned apartment, office, and commercial store buildings, the manufacturer further explained.



Packages Blast Freezer Unit

A new blast freezer unit has been announced by Imeco, Inc., Dept. AC&RN, 3033 W. Belmont Ave., Chicago 18.

It provides large air volume against the higher statics found in freezing tunnels.

Blower, cooling coils, and defrosting arrangements are combined in a compact unit.

A wide range of air volumes and coil capacities is available and these can be combined to obtain the correct balance for a particular application, it was explained. The casing is made of heavy gauge sheet with sturdy structural supports. The supports are hot dip galvanized, the balance of the unit can also be provided hot dip galvanized after fabrication.

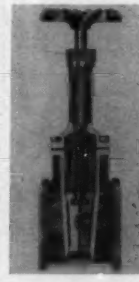
A bottom drip pan can be furnished where specified, it was pointed out.

Gate Valve Has Nylon Seat

New gate valve which features an aluminum body and nylon seat discs has been produced by Jordan Industrial Sales Div., OPW Corp., Dept. ACRN, 6013 Wiehe Rd., Cincinnati 13.

No. 76 gate valve has 125 p.s.i. feature with weight claimed to be 40% of that of all-bronze gate valve.

Seat rings are unnecessary on the unit available in 3-in. screwed-end size, according to the firm.



Drum Switch Starts, Reverses Motors

A new drum switch for starting, stopping, and reversing small a.c. and d.c. motors has been announced by Allen-Bradley Co., Dept. AC&RN, 136 W. Greenfield Ave., Milwaukee 4.



Bulletin 350 switch is furnished in surface mounted NEMA type 1 enclosures, or with an oiltight

cover plate for cavity mounting in a machine base. It has a newly-designed, wrap-around cover which completely exposes the switch mechanism for easy wiring. In addition, terminal screws are accessible from the front instead of from the side. The edge of the enclosure base is raised so that the wrap-around cover can be slipped off or on directly from the front, when the unit is mounted on its base. Thus, spacers are not needed for base mounting.

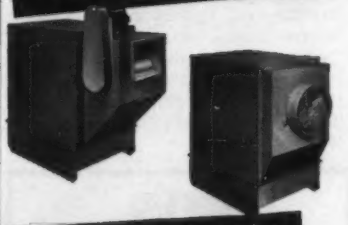
Designs Three-Way Solenoid Valves

A new line of three-way solenoid valves for use with medium-size cylinders has been announced by Skinner Electric Valve Div., Dept. AC&RN, 105 Edgewood Ave., New Britain, Conn.



Called the A Series, the new valve line bridges the gap between the V5 line used with small cylinders and the M3 line used with large cylinders. The design of this new line permits economical and efficient operation of medium-size cylinders as well as faster operation of smaller cylinders where increased cycling speed is a necessity.

LARKIN MEANS EFFICIENT DESIGN....



LARKIN COOLING TOWER

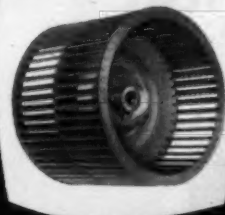
All Larkin refrigeration and air conditioning equipment is designed to give peak performance at low operating costs, whatever the requirements. The same organization that produced the original, patented cross-fin coil maintains a constant effort for better, more efficient design. Just one more reason why Larkin leads.

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Air Cooled and Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers



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RADIANT COILS, INC.

leaders in the manufacturing of Heating and Cooling Equipment.

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REVCOR'S NEW DOUBLE INLET BLASTAIRE BLOWER WHEELS

because... Revcor's New Double Inlet Blastaire Blower Wheels' Reliability of Service Helps Kritzer to Maintain its Quality!

REVCOR SINGLE AND DOUBLE INLET BLASTAIRE BLOWER WHEELS ARE USED BY OVER 60% OF THE ROOM AIR CONDITIONER MANUFACTURERS!

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To keep systems running at peak efficiency--

FILTERING is as important as Drying!

Remove sludge—flux—solder—chips—rust—carbon and other contaminants

Prevent plugged driers—pressure drop—poor heat transfer—damaged parts—excessive running—and HERMETIC BURN OUTS

Despite careful installation and servicing, harmful contaminants get into a system—or form during operation. They cause trouble and cost money in callbacks, damaged equipment, expensive cleansing jobs—often, in spoiled merchandise.

For a few dollars, PERMACLEAN Filters can avoid all this. Install them on the suction side of every installation—also on the liquid line, ahead of driers, expansion or solenoid valves and capillary tubes. This will keep refrigerants and oil clean, protect working parts, avoid shutdowns.

Install low-cost, high capacity

PERMACLEAN FILTERS

for permanent Suction and Liquid line service

Many sizes to meet all needs.

Factory-sealed and replaceable cartridge types.

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THE MCINTIRE CO. LIVINGSTON 11, N. J.



PERMACLEAN FILTERS

stop particles as small as 5 to 10 microns, or 25 times more effectiveness than 100 mesh screen. Provide large filtering surface area.

For 3,450-Ton Central System

Insulation Cuts Heat Gain, Protects from Corrosion, Halts Soil Chemical, Moisture Penetration of Buried Water Piping

SAN JOSE, Calif.—When installing a 3,450-ton central air conditioning system at its new plant here, International Business Machines Corp. faced the problem of how to handle the extensive network of chilled water pipes planned to run from the powerhouse to six other buildings on the 190-acre site.

Air conditioning equipment is installed in the powerhouse building to supply chilled water at a minimum of 45° F. to air blowers in each building.

The seven structures contain over 440,000 sq. ft. of floor space, include two manufacturing buildings, an engineering laboratory, a research building, an education building, and a cafeteria. Among other things, the plant will produce new IBM "Ramac" data processing equipment.

Need Comfortable Temperatures in Production Area

Although parts of the system will operate on a seasonal basis, some air conditioning is required at all times to maintain comfortable temperatures in production areas. Along with the three York 1,150-ton air conditioning units, space is provided for another unit if it becomes necessary.

Regarding how best to install the extensive chilled water piping, consulting engineer Keller & Gannon of San Francisco considered four alternate solutions. First was using overhead or above-ground piping. Second was to use a concrete tunnel method. Third alternate was a pre-sealed steel conduit. And, finally, they considered the direct burial unjacketed technique.

Overhead or above-ground piping was eliminated due to claimed unsightliness and because it would obstruct traffic patterns in plant grounds. The supporting structure would add considerably to the over-all cost, it was explained.

If the concrete tunnel method were used, 6 to 8-ft. rectangular or round tunnels would have to be built underground, and insulated pipes are generally supported along the roof and walls of the tunnel. Cost studies reportedly indicated this method would run about 200% to 300% higher than using the direct burial technique.

Pre-sealed steel conduit, which has molded insulation surrounded with a jacket of steel, would have cost up to 60% more than the direct burial method, it was said. In addition, pre-sealed seamless conduit would require tests to be made of the pipe and jacket before it was covered, it was stated. The jacket would have to be welded after the pipeline was installed in the trench. According to the project engineers, the steel jacket perhaps would eventually corrode allowing moisture to enter the insulation layer and reach the pipe.

Key factor for the direct burial unjacketed technique, it was stated, was the choice of a multi-duty insulation that would cut heat gain, protect the pipe



MAINS in trench ready for test at IBM plant in San Jose. Concrete manholes for expansion joints are not erected at this stage.

from corrosion, support the weight of the filled pipe, be proof against soil chemicals, and moisture which could cause failure of the insulation.

It was decided cellular glass insulation made by Pittsburgh Corning Corp. met all these requirements. "Foamglas," the material used, is a non-fibrous mass of sealed glass cells impervious to moisture and unaffected by soil chemicals, it is claimed. A compressive strength of over 7 tons per sq. ft. can handle the heavy weight of water-filled pipes, Pittsburgh Corning said.

In view of these points, the direct burial unjacketed meth-

od was chosen. In addition to claimed cost savings, the installation procedure was said to be simpler.

Insulation contractor, Plant Asbestos Co., stated the 40-ft. lengths of pipe were insulated as they rested at waist height of wooden dunnage along the top side of the trench. After the pipe was welded and tested, welds were covered with Foamglas and the trench was ready for backfilling.

60% of Piping Underground

Between 8,000 and 10,000 ft. of the chilled water piping was laid underground, about 60% of the total amount of chilled water pipes.

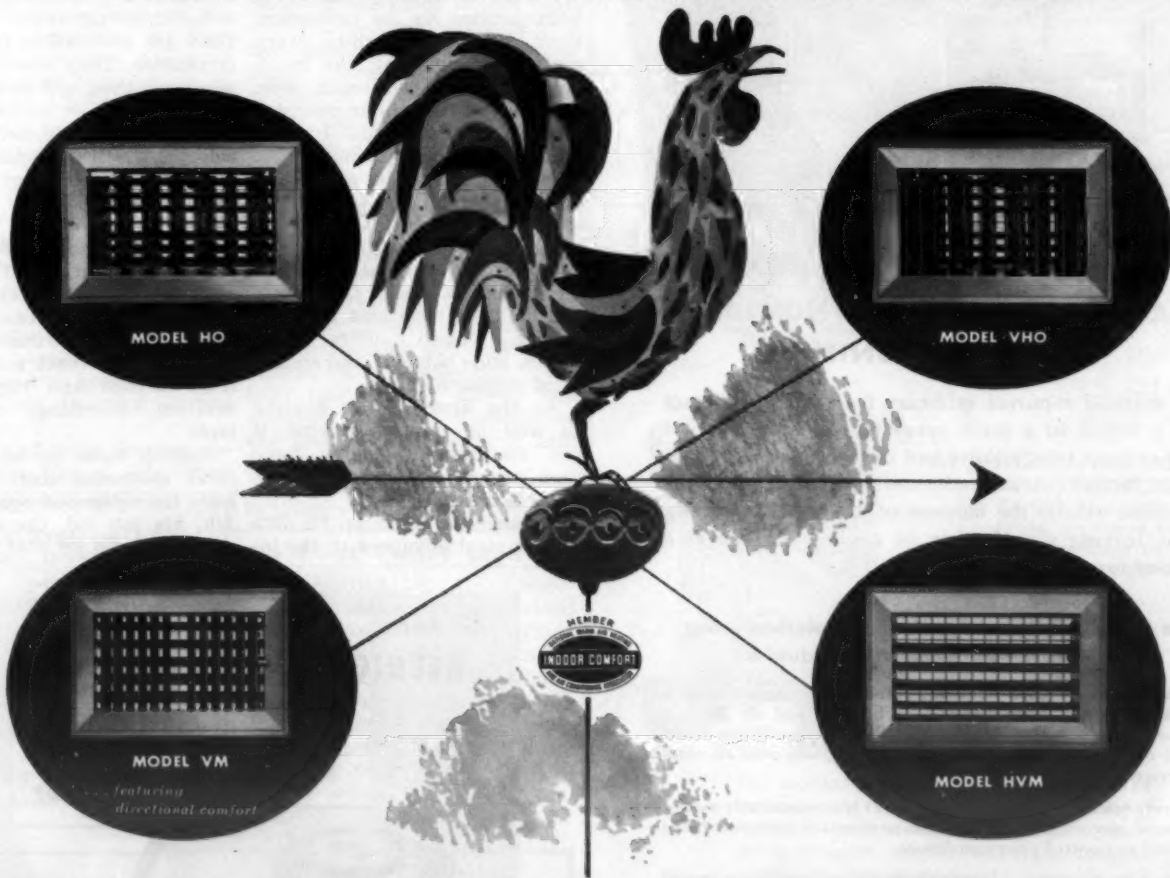
Two main line pipelines are each over 3,000 ft. long with the longest branch line running 150 ft. Pipes range in nominal size from 18 to 8 in. on main lines and from 14 to 4 in. on branch lines. All pipe is seam-

less steel ASTM specification A53.

Bottom of the earth trench, 6 to 11 ft. deep and up to 6 ft. wide, is covered with a 6-in. bed of sand. This was compacted with high-frequency vibrating equipment to provide a flexible carrier protecting the pipe against excessive shock in case of earthquake. After the pipe was lowered into place, it was covered with a backfill of sand on all sides. Each trench contains supply and return pipes.

In insulating, pipe surface was first covered with an asphalt cutback, it was explained. Foamglas was then cemented to the pipe with an asphalt cutback staggering and sealing the longitudinal joints. Stainless steel bands secured the insulation after which a 1/2-in. asphalt coating was applied. A glass fabric membrane was imbedded into this and a hand-troweled mastic applied.

NEW! from STANDARD

the *modulaire* SERIES
AIR-CONDITIONING REGISTERS and GRILLES

Standard introduces a new line of air-conditioning registers and grilles with **MODULAIRE**. Standard calls this concept "directional comfort" and it means just what it says . . . the right pattern and velocity of cool air for any given air-conditioned space. There are **MODULAIRE** models available with a variety of face bar combinations (horizontal and vertical; single and double bank) with either opposed blade dampers or multi-valve louvers . . . models to fit any need . . . any application. Write for Standard's new catalog!



MODEL HO
Single Bank Deflection Register with Opposed Blade Dampers



MODEL VM
Single Bank Deflection Register with Multi-Valve Louvers



MODEL HVM
Double Bank Deflection Register with Multi-Valve Louvers



MODEL VHO
Double Bank Deflection Register with Opposed Blade Dampers

Mail coupon for free catalogs and information on the complete STANDARD line of registers and grilles for all your air-conditioning, heating, and two-way system needs!

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☐ Standard Register and Grille Catalog

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Company _____

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Developing Profitable Commercial Service Business (2)

Success of Firm's Service Policy Indicated by Renewal Rate of 95%

A large part of Resco's work involves the installation of refrigeration equipment for institutional users and sellers including Imperial Restaurant

"We offer only one all-inclusive maintenance contract," Restagno said. "We either take complete service responsibility for the equipment or we take none."

This is the second instalment of a two-part article describing the service operation of Resco Refrigeration Service, Inc., of Chicago. The first part appeared in the May 12 issue.

Supply, The Stearns Co., Century Equipment Co., Hussmann Distributing Co., and Jewel Tea Co.

Approximately 20% of Resco's service business is in maintenance contracts.

Under the terms of the contract, Resco agrees to make necessary adjustments to the equipment for efficient operation, provide labor and materials, answer service calls promptly, and inspect the equipment at least three times a year. Inspections include adjusting, cleaning, and oiling equipment.

The customer is required to eliminate unnecessary calls by making prior inspections of



MARTY LADD, installation supervisor for Resco, conducts a training session to keep his men posted on latest developments in the industry.

equipment, to pay extra for repairs necessitated by other than normal operation and use, and to have such repairs made promptly.

Contract excludes repairs to cabinets, hardware, coin meters, or similar accessories. It also excludes any changes or repairs required by government bodies. It disclaims responsibility for repairs or materials furnished by others or for delays due to causes beyond Resco's control. It provides that delinquency in payment can cancel the contract immediately.

Success of Resco's service contract is proved by the fact that 95% of them are renewed annually, Restagno declared.

Resco, of course, offers 24-hour service to its customers. Four men are on duty every night, two covering the north side and two the south side. Resco's own telephone operator remains on duty until 10 p.m. every night except Sunday to take calls. After 10 p.m., calls are handled by a central operator who has the home numbers of duty servicemen.

To get and keep high quality servicemen it needs to protect and build its reputation for good service. Resco offers high wages, wide benefits, and security of employment.

As the firm handles heating as well as cooling service, it can maintain its work force year around without difficulty, Restagno notes.

To keep his men up to date on technical advances in the in-

dustry, training sessions are held every two weeks. Sometimes all men will attend a single session. But often the men will be split up into small groups so that new service techniques or information on new products can be brought home more effectively to each man.

As a result, Resco's servicemen are able to answer calls on all makes of equipment and do a satisfactory job for the customer.

Salesmen are given the same fringe benefits and intensive training as the servicemen. They work on commission against a draw and car allowance, Swartz explained.

Like the servicemen, the salesmen are encouraged to develop their particular abilities. They are not limited to specific territories. They can take jobs wherever they can find them.

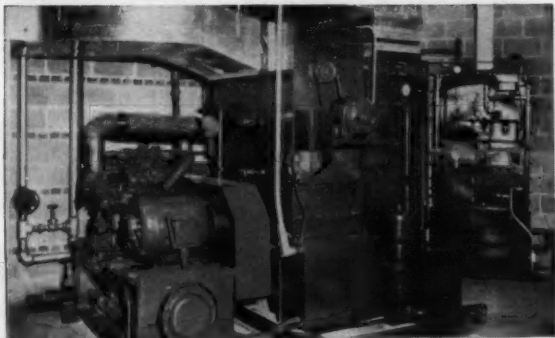
An important factor in the success of his salesmen, Swartz believes, is the detailed cost records that are kept on each job.

For every job, the salesman makes out a cost sheet. On it he lists his estimated cost for equipment, installation material, labor, service reserve, permits, and subcontracted services, such as sheet metal, electric, cartage and rigging, insulation, plumbing, and controls.

Adding these up he lists his total estimated cost. Then he adds the estimated profit on the job, his job bid, the estimated

(Concluded on next page)

DRY AIR... PRECISELY as you want it



NIAGARA CONTROLLED HUMIDITY AIR CONDITIONING

This method removes moisture from air by contact with a liquid in a small spray chamber. The liquid spray contact temperature and the absorbent concentration, factors that are easily and positively controlled, determine exactly the amount of moisture remaining in the leaving air. Heating or cooling is done as a separate function.

The Niagara's Controlled Humidity Method using HYGROL moisture-absorbent liquid is

Best and most effective because... it removes moisture as a separate function from cooling or heating and so gives a precise result constantly and always. Niagara machines using liquid contact means of drying air have given over 20 years of service.

Most reliable because... the absorbent is continuously re-concentrated automatically. No moisture-sensitive instruments are required to control your conditions.

Most flexible because... you can obtain any condition at will and hold it as long as you wish in either continuous production, testing or storage.

Easiest to take care of because... the apparatus is simple, parts are accessible, controls are trustworthy.

Most compact, taking less space for installation.

Inexpensive to operate because... no re-heat is needed to obtain the relative humidity you wish in normal temperature ranges and frequently no refrigeration is used to remove moisture.

The cleanest because... no solids, salts or solutions of solids are used and there are no corrosive or reactive substances.

Write for full information; ask for Bulletins 112 and 121. Address Dept. AC-5

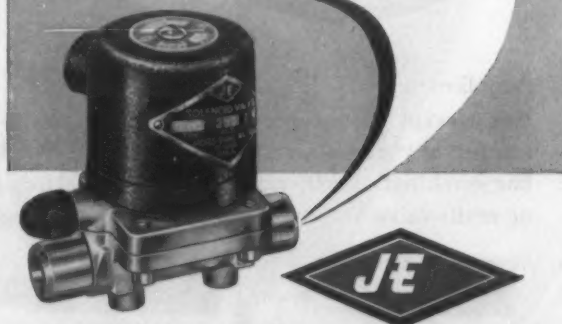
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Simplify Valve Selection

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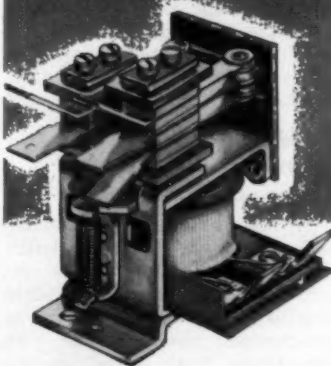
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can lower your

"finished product" cost...



...with

the 98000

Series A.C. or D.C.

General Purpose

Relays

The basic relay with numerous contact forms, ratings and terminal variations is in regular production. RBM has "CUSTOMER-ized" this type of relay to fit almost every conceivable requirement. This vast background of application engineering can serve you with design short-cuts... lower your "finished product" cost.

Standard versions approved under U/L file Nos. E12139 or E22381.

FEATURES: Pressfit pile-up eliminates drift; assures contact stability... Dependable cross-bar contacts available for low voltage and/or low current circuits. 6 or 15 amp contacts available for power circuits. Simplified magnet frame and armature assembly for efficient, positive action. Variety of mountings. Also available in 97000 Series providing added coil power and greater sensitivity.

A.C.	Specifications	D.C.
98700 type		98600 type
230 AC	Max. Coil Voltage	115 DC
	Max. Coil Res. in OHMS.	20000
9.0 VA IN-RUSH 6.5 VA SEALED	Max. Coil Watts or Volt Amps	4.0 Watts
2 PDT 15 amps.	Max. Contact form with rated current at 32 V. DC or 115 V. AC (non-inductive load)	2 PDT 15 amps.
4 PDT 6 amps.		4 PDT 6 amps.
6 PDT 3 amps.		6 PDT 3 amps.

Consult your RBM Application Engineer or write for Bulletin 1060.

RBM DIVISION
ESSEX WIRE CORPORATION
Logansport, Indiana

People Pack Australian Show --

(Continued from Page 1)

Australian manufacturer makes American equipment under license from one or more U. S. manufacturers.

Let's run down the list of exhibitors:

There's Kelvinator of Australia, which displayed Kelvinator household refrigerators, room air conditioners, a representative selection of Kelvinator spare parts, open and sealed commercial condensing units, and Temprite beer coolers.

Kelvinator officials in attendance included:

E. W. Parsons, W. T. Morgan, N. L. Wright, D. A. Chapman, G. E. Colvin, R. G. Alderson, H. G. Perkins, and G. J. Higgins.

Kelvinator of Australia manufactures the following refrigeration products:

Household refrigerators (seven models), upright and vertical freezers, room air conditioners, packaged water coolers, packaged beer coolers, commercial open type condensing units up to 7½ hp., commercial sealed units up to ½ hp., Temprite beer coolers, unit coolers, and evaporative condensers.

Prominent Exhibitors

An important exhibitor at this Australian Institute of Refrigeration convention and exhibi-

tion was Yorkaire Pty., Ltd., which utilizes products made by other segments of Federated Engineering Industries, Ltd., in association with York Corp. (subsidiary of Borg-Warner Corp.).

All designing, drafting, and many installations are carried out by York-trained personnel.

Yorkaire displayed compressors and condensers in its exhibition space—also special coils designed for Yorkaire in Australia.

E. J. S. Davis, manager of the New South Wales branch, led Yorkaire men here.

R. Hogarth, design engineer, also greeted visitors, as did A. P. Disney, K. Moss, and J. Eastwood of the engineering division, plus N. W. Mellor, sales manager, K. Dobson and R. Browne, both of the contract department, E. W. Mickle, Victoria manager, and B. Salmon, Queensland manager.

Numerous Cooling Installations

Yorkaire is proud of the numerous air conditioning installations it has placed in Australia through its branches and its distributors (Flower Davies & Johnson, Ltd., of Perth; and

THIS IS Harris-Hutchinson's Hussmann refrigeration unit assembly line.



U. & J. Engineering, Ltd., of Adelaide.)

Prominent among these installations is the recently-finished Mutual Life and Citizens' Assurance Co., Ltd. building (largest in Australia) which was completely air conditioned by Yorkaire.

Another exhibitor — Email, Ltd., of Waterloo, N.S.W.—is one of Australia's largest industrial groups. It comprises 40 subsidiary companies, and employs some 7,000.

Its Refrigeration Div. displayed commercial, industrial, and household refrigeration units, air conditioners, and allied items.

Allied with Many U. S. Companies

Thanks to important overseas connections, Email holds exclusive Australian manufacturing and marketing arrangements with Westinghouse International, Dunham-Bush, Scotsman-Queen, Continental Air Filters, Creamery Package Mfg. Co., Detroit Ice Machine Co., Hussmann, Marley, and Tenney.

Belt-driven and accessible sealed condensing units, "Chill-fast" beer and liquid chillers, and S. W. embossed evaporator plates produced by Emmco Pty., Ltd. also were exhibited, along with:

Westinghouse "Unitaire" air conditioners, Heat-X water chillers, ammonia compressors, Marley cooling towers, Dunham-Bush heat transfer components, and Tenney low-temperature equipment (produced by Air Condrol Equipment, Werner Div.), Westinghouse room air conditioners, "Steri-lamps," fans, "Precipitron" electrostatic air filters, and refrigerators, Continental air filters, Hussmann self-service display cases, Scotsman ice flakers, Westinghouse water coolers, and truck refrigeration equipment.

Commercial display cases and freezers were exhibited by Electric Commercial Refrigeration Pty., Ltd. Its subsidiary (Harris, Hutchinson) manned a separate display space at the show.

Shows Full Line

Our longtime old friends, Gordon Bros. Pty., Ltd., showed a full line of commercial and industrial refrigeration and air conditioning equipment—manufactured in their Melbourne factory.

T. E. Gordon, secretary of the firm, explains that "in accordance with the general practice in Australia" it also sells, installs, and services its own equipment. And the Gordon Bros. display was solid, well attended.

Licensee of Brunner Div. (Dunham-Bush) to make that company's compressors in Australia, Gordon Bros. also has

completed arrangements with Vilter Mfg. Co. to manufacture Vilter high-speed ammonia condensing units.

Similar licensing arrangements have been negotiated by Gordon with Koch to produce commercial refrigeration cases; and with Air Refrigeration Corp. for its capillary cells and auxiliary equipment.

Presently Gordon Bros. is negotiating with Marlo Coil Co. to become Australia's licensed producer of Marlo coils and heat exchanger equipment.

J. Allan, W. Summerton, G. Gordon, and T. Gordon (four of the firm's directors) headed the delegation which assisted Sydney representatives at the convention and exhibition.

Accompanying the Gordon directors for varying periods of time at the exhibition were A. Mac Donald, sales manager, E. Cameron, air conditioning manager, R. Carthew, works manager, and S. Wightman, installa-

bourne. P. Clarke, general manager of the Sydney office, plus his aides B. Holding, air conditioning manager, and L. Piesse, sales manager, also worked the Gordon exhibit.

Watch 'Gremlins'

Bundy Tubing Co. (Australia) featured in its "Bundyweld" exhibit a "Rotoscope" screen on which visitors interestedly watched the Bundy "gremlins" cartoon characters manufacture this firm's distinguished copper-welded steel tubing.

Next to this Rotoscope exhibition was a refrigerator with part of the surface removed—to give a cutaway view of serpentine coil made from Bundyweld tubing. Background boards reveal various evaporator coils and compressor parts available.

Darcy Coleman, Arthur Gray, Geoffrey Hone, and George Mulvaney represented Bundy here. Their Kilburn plant has a rated output of 60,000,000 tubing feet per year to supply the Australian market—plus exports to India, New Zealand, and a potential Japanese market.

Two Detroiters are on the board of directors of this Australian Bundy partner. John W. Anderson, vice president of the foreign division, and Dr. R. H. Hobrock help direct Bundy's modern plant and offices, which are situated in Kilburn, five miles north of Adelaide.

Sales offices represent the firm in all states of the Commonwealth.

Chrysler Australia's Airtemp packaged air conditioners also made their "Down Under debut" at this inaugural Australian Institute of Refrigeration convention and exhibition. Model 1005-2, a 5-ton job, captured quite a bit of attention.



THESE members of Gordon Brothers Pty. are discussing plans for the first AIR convention. Left to right: R. M. Carthew, production manager; S. Wightman, outdoor manager; W. Robinson, assistant production manager; T. E. Gordon, director; and J. D. Allan, director.

Realizing the need for training those chosen to distribute and sell Airtemp units, that firm's representatives offered classroom courses in "Know-how" gained in the American market.

(Continued on next page)

MICROMETSM PLATES

... the easiest, least expensive way to inhibit scale formation and protect against corrosion in cooling water systems. One charge lasts a whole season in most systems. Continuous treatment with easily installed feeding bags. Micromet plates are the best way to

STOP SCALE

Micromet plates are one of Calgon's Big 3 cooling water treatment products. It will pay you to use all 3—

CALGON[®] SCALE REMOVER makes it easy to clean a system quickly and safely. Corrosion inhibitors protect system. Built-in pH indicator shows how much Scale Remover to use, and helps tell when system is clean.

CALGON[®] ALGAECIDE'S positive action kills algae and slime growths.

SEE YOUR REFRIGERATION WHOLESALER FOR CALGON'S BIG 3



and for these other quality Calgon products:

BANOX[®] quickly forms a protective film on metal surfaces. Should be used at spring start-up, after acid cleaning, and at shut-down.

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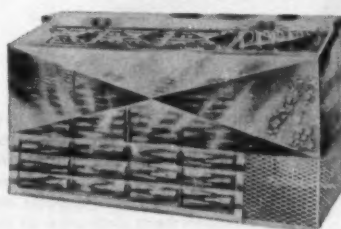
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AVAILABLE IN SIZES 4 to 10 FT.

ARE you in need of a "just right" man to fill a slot in your organization—the man you are looking for will be reading the

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Lighter loading, longer life.

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SALES manager of Bundy, Darcy Coleman (second from left) shows one of his firm's products to a group of members of the Refrigeration Institute of Australia.

Australian Exhibition - -

(Continued from preceding page)

Dealers registered with the Airtemp booth could attend training schools on selling, application engineering, and servicing Airtemp equipment.

In order that distributors and dealers need not incur great expense in stocking spare parts, Airtemp has limited its Anzac exports to 5 and 7½-ton models

(expected to be most popular in Australia).

Eventually, we were informed, Airtemp air conditioners will be manufactured in Chrysler's Keswick plant, and later transferred to the newly-acquired 180-acre site at Tonsley Park near Adelaide.

W. D. Ferguson is Chrysler Australia, Ltd.'s managing director.

Australia's Airtemp Div. is headed by R. R. Dunn, who spent 14 months recently at the Airtemp Engineering laboratories in Dayton.

Pope Products, Ltd., under an agreement recently completed by S. Barton Pope, manufactures Norge refrigerators and air conditioners in Beverley, South Australia.

John Erickson, manager of Pope's New South Wales branch, supervised the exhibit of Norge-Pope refrigerators at the exhibition. He was assisted by R. G. (Bob) Morgan, sales manager.

Supported by a well-equipped central service division in each branch, Pope has offices and warehouses in every state capital city of the island continent, plus Tasmania. Sales and service personnel factory-trained move over that broad land from the head office and main plant in Adelaide to help regional retailers.

Looks to Future In Packaged Units

Pope Products primarily has been a producer of hermetic compressors. Nevertheless, this firm believes that air condition-

ing and refrigeration "package equipment" will become its most important activity in the near future.

Frigrite Ltd. is the Australian licensee manufacturer affiliated with Tyler Refrigeration Corp. (commercial refrigeration cases) and Worthington Corp. (air conditioning units).

Representative items of these two related types of products were shown at the exhibition.

Led In Developing Self-Service Cases

Frigrite has played an important role in the development of self-service commercial refrigeration units "Down Under." H. C. Tiller is managing director.

With headquarters in Melbourne and a second large factory in Brisbane, plus branches in Sydney and Adelaide, Frigrite operates in "very close association" with Tyler and Worthington.

As Mr. Tiller puts it, "These links with major U. S. companies follow the pattern becoming more and more common in Australian industry of working along with American advice."

In one of its exhibit spaces Frigrite showed open display cases (or as the Aussies call them, "retail refrigerators") made according to the latest Tyler specifications.

Its other space was devoted to Worthington air conditioners. Included was a Frigrite-made Worthington designed five-ton packaged job.

Frigrite has added quick-frozen food cabinets to its open case line, and these readily have won acceptance from Australian food retailers.

Other Frigrite products are ice cream cabinets, walk-in coolers, and commercial air conditioners.

In 1956 Tyler agreed to give Frigrite full manufacturing co-operation, and in turn Frigrite granted Tyler a portion of its stock and a seat on the board of directors.

Bob Tyler's active cooperation and support allowed Frigrite to

introduce each new Tyler cabinet design almost at the same time as it appeared in the U. S. It also paved the way for assembly-line production methods.

Then Frigrite extended its manufacturing to bulk milk and cream refrigerated tanks built to specifications of the Wilson Div. of Tyler.

Frigrite's air conditioning installations have been made in theaters, factories, and stores.

Among the latest is the air conditioning of Melbourne's new Imperial Chemical Industries of Australia factory.

In addition, Frigrite has installed a big industrial refrigeration system in the new Kraft Foods plant at Port Melbourne.

Along with bossman H. C. Tiller, other Frigrite executives who attended the AIR convention and exhibition were Robin Scown, managing director of Frigrite (Queensland) Propri-



FOUNDER of Frigrite Ltd., H. C. Tiller, managing director, helps model Eva Stanek demonstrate a miniature cooler sent from Tyler Corp. when the Wilson-Tyler ice-bank bulk milk cooler was launched in Australia.

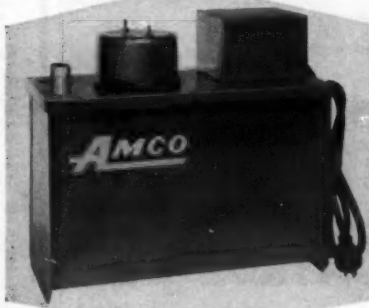
tary, Ltd., J. D. Targett, in charge of the firm's air conditioning division, E. Champion, refrigeration sales manager for New South Wales, and D. Martin, N.S.W. air conditioning sales manager.

(To Be Continued)

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Combines QUALITY
and PERFORMANCE
WITH LOW COST



- Positive displacement electric switch w/float control
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- Ready to Install

AMCO Condensate Pump has no equal for efficient, quiet, trouble-free operation . . . will remove cold or hot condensate fluid from receiver tank, boilers, air conditioning systems and pumps it to outside drain. Has 1/30 H.P. Motor, 20 ft. head (most powerful made—will deliver up to 371 G.P.H.) has 6 ft. heavy rubber cord, shock proof plug.

Shipping wt. 13 lbs.

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Flexon Vibra-Sorbers are corrugated flexible metal connectors for absorbing vibration and noise in compressor systems.

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For effective, economical vibration control, use Flexon Vibra-Sorbers—U.L. listed in sizes ½ through 1½" I.D. Larger sizes to 8" available. Ask for Bulletin 139.

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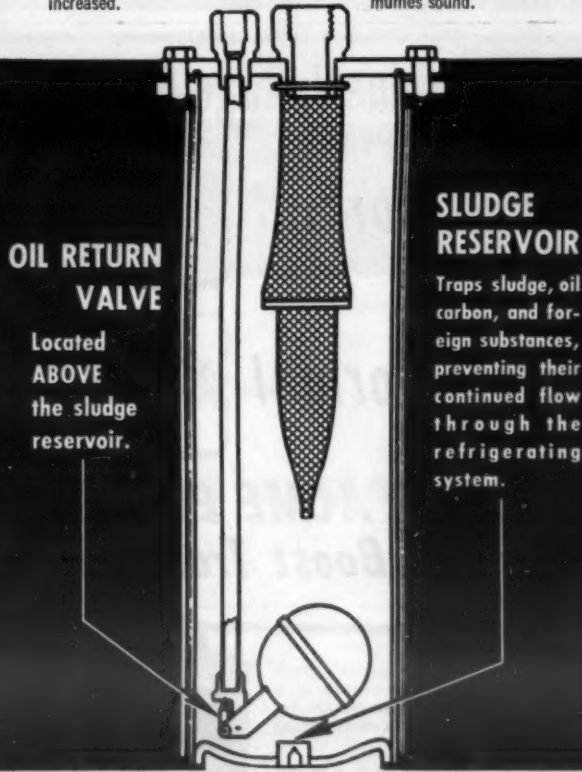
Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.
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Boost Refrigerating Efficiency and Muffle Sound with a

TEMPRITE OIL SEPARATOR

Oil is separated from the gas before it can get into the evaporator and is returned to the compressor automatically . . .

- Full capacity of expansion valve assured.
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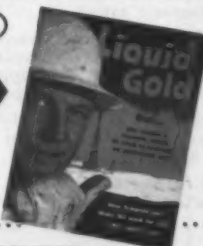


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Air Distribution Requirements In Year-Round Air Conditioning

Part 2—Fundamentals of Air Handling

By Frank D. Klein, Chief Engineer, Governair Corp.

Fan (blowers) are laboratory tested by their manufacturers for design efficiency and subsequently rated under precise sets of accepted circumstances and procedures. Though not all manufacturers agree with or observe the exact set of test

procedures as that of the Air Moving & Conditioning Association (successors to National Association of Fan Manufacturers), most all strive to have their product meet the general requirements of this association in performance.

In all cases the fan manufacturer realizes that whatever his given test procedures may be they must be practically applicable to field observations and duplications. Such procedures when used for test most generally embody a "norm" of circumstances that will reveal to him what his product will do under most all actual practical conditions.

It is important engineers, as well as those of us engaged in both engineering and contracting-installation, understand the rudiments of such test procedures, so that these fundamentals may be applied in equipment design, field application, and observation when it is vital to detect potential or existing trouble.

Furthermore, more than the mere rudiments must be understood by those who are engaged in equipment design, for therein lies the foundation for obtaining optimum efficiencies based on the manufacturers' basis of design.

Most authorities in this field agree that thus far no accurate set of Test Procedures have been developed for use of either gas analytical methods or use of Pitot Tube equipment and other instruments that will absolutely reveal, without question of doubt, the exact performance of a given piece of fan equipment in the field, under actual application, in relation to its initial rating by the manufacturer in his laboratory.

Values from field observations

usually vary so widely from the controlled set of laboratory circumstances originally used to rate the Fan that most manufacturers will only guarantee their product under their test procedures. These have been resolved into general acceptance by most manufacturers under the "Standard Test Code for Centrifugal and Axial Fans" which is jointly recognized by the Air Moving & Conditioning Association, Inc., the American Society of Heating & Air Conditioning Engineers, and the Power Test Code Committee of the American Society of Mechanical Engineers.

The above paragraph may seem to be in contradiction to statements in the opening paragraphs of this instalment. However, there is a modicum of common sense that bridges both which can benefit those concerned with usage and observation.

(To Be Continued)

123 Packaged Units To Air Condition Air Base Buildings

DAYTON—Chrysler Airtemp is now in the process of supplying Brookley Air Force Base, Mobile, Ala., with 123 water-cooled "packaged" air conditioners, according to the company.

Receipt of the large equipment order—which calls for one 3-ton, 68 5-ton, 48 8-ton, and six 11-ton commercial-type self-contained conditioners—was announced by A. J. Schiffmann, Airtemp director of national account sales.

The conditioners, according to Schiffmann, will be used at the air force base to air condition 79 buildings occupied by administrative personnel.

Contract for the purchase and installation of the cooling units was awarded to Gulf Air Co., Mobile air conditioning contracting firm. During contract negotiations, Gulf Air was assisted by Steel City Supply Co., Birmingham Airtemp distributor.

NEW EDWARDS airvec

The Fanless... Noiseless... Air-Cooled Condenser

NO WIRING, NO NOISE, NO OPERATING EXPENSE, NO MOTORS, NO MAINTENANCE. AIRVEC—a new principle in air conditioning. So new, so revolutionary that all other condenser types are made obsolete.

Manufactured in 2, 3, 5, and 7½ ton basic coil sections, which then can be assembled in multi-sections for unlimited capacities up to hundreds of tons. For supermarket installations, units will be circulated for fractional tonnages as required. Head pressure control also available. WRITE AIRVEC DEPT., EDWARDS ENGINEERING CORP. Manufacturers Agents Inquiries Invited.

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with these advantages:

- COST REDUCED 30% to 40%
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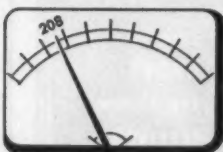
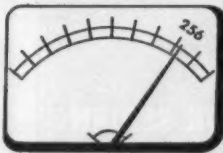
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Install an ACME ELECTRIC
Buck and Boost Transformer

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An air conditioning unit with a motor designed for 230 volts operation will lose torque, overheat or cycle off-and-on if operated from a circuit below the nameplate rating.

A Buck and Boost transformer connected to a 208 volt circuit and adjusted for a 10% boost will supply 228.8 volts which is entirely satisfactory for 230 volt motor operation.

If operated on excessively high voltage the motor will run hot, windings char and finally burn-out and the cost of consumed electric current will be higher than necessary.

To correct undervoltage or overvoltage conditions — install an Acme Electric Buck and Boost transformer. Write for catalog.



ACME ELECTRIC CORPORATION
925 WATER STREET CUBA, NEW YORK

Acme  Electric
TRANSFORMERS

Cooled 'Brain' Keeps Track of 3,500,000

DETROIT—A 40-ton giant computer, the first of a new breed of electronic brains, started "thinking" here recently for the 3½ million Michigan residents who are members of Michigan Blue Cross-Blue Shield service.

William S. McNary, executive vice president of Michigan Hospital Service activated the 24-section "brain" which is housed in 5,000 sq. ft. of air conditioned, humidity-control space.

Fast enough to read the 627,000 names in the Detroit telephone book in 11 minutes, the \$37,000-a-month brain will keep track of the hospital and medical records of more than 1,600,000 Michigan subscribers and their families (a total of some 3½ million people). The newest of the large-scale electronic data processing systems to report for work, it was designed and built by the Datamatic Div. of Minneapolis-Honeywell Regulator Co.

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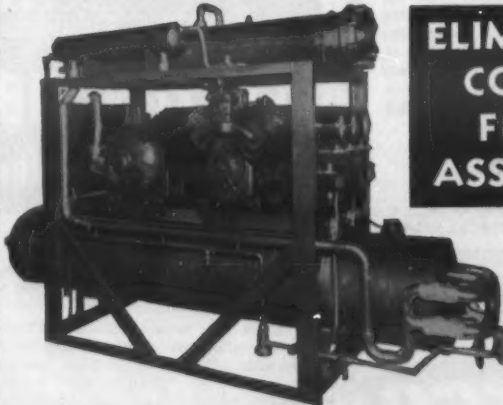
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All components in one low-cost single unit, motor, starter, full Freon charge, Thermatrol capacity control—everything! Designed for standard conditions: for R-12 and R-22. Standard 10 to 75 ton capacities. Also Specification Models to fit any requirements including Dual and Quad compressors. Simple hookup and balancing. Ideal for multi-zone construction and year around systems. One order does the job! Write for engineering data.

Manufacturers of
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5-19-58

Carl D. Hare Wins Elisha Gray Award

NEW YORK CITY—Carl D. Hare, president of Nunn Electric Supply Corp. of Amarillo and Lubbock, Texas, recently became the fourth recipient of Whirlpool Corp.'s highest honor to principals of distributor firms—the Elisha Gray Award.

In making the presentation at a Whirlpool convention luncheon at the Savoy Plaza hotel here, Whirlpool President Elisha Gray, II paid tribute to Hare's "outstanding individual contribution to the welfare of the corporation."

While the Elisha Gray Award is not based on sales volume, Gray pointed out that in its first year as a full-line Whirlpool distributor, Nunn Electric's volume increased close to 70%. Today the company serves 179 dealers handling Whirlpool

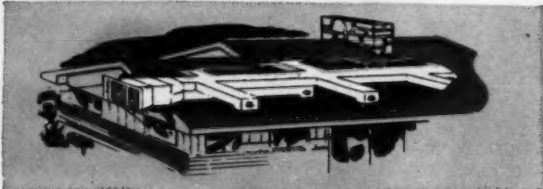
products, according to the announcement.

Previous winners of the Elisha Gray Award are William Shipley, president of Mainline Cleveland, Inc.; Irving Sarnoff, vice president of Bruno-New York, Inc.; and Elmer A. Hamburg, president of Hamburg Brothers, Inc., Pittsburgh.

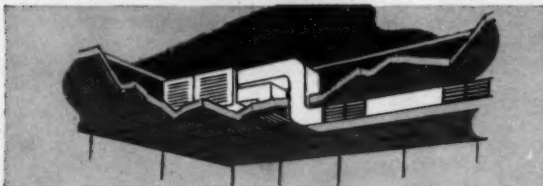
Rural Gas Service, Inc. Denies Monopoly Charges

WASHINGTON, D. C.—Rural Gas Service, Inc., Lockhouse Rd., Westfield, Mass., has denied Federal Trade Commission charges of entering into monopolistic exclusive dealing and tying contracts with the wholesale distributors of its "Rurigas" and "Rural Gas" liquefied petroleum gas. It also denies enforcing these contracts by unlawful means and discriminating in price among its retail customers.

AMERICAN-Standard AIR-COOLED AIR CONDITIONERS!

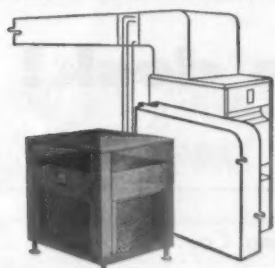


Gable roof—attic installation



Commercial flat roof installation

PACKAGE SYSTEMS. The American-Standard package air conditioner makes residential and light commercial installations easy—no refrigerant hook-up required. It's a twin-compressor unit; delivers continuous air circulation and dehumidification for 24-hour-a-day comfort. Available in 2 and 3½ hp sizes with or without pre-fabricated duct kit. Refrigerant circuit covered by 5-Year Protection Plan.



Outdoor Air-cooled Condensing Unit



Horizontal Air-flow Evaporator



Counterflow Evaporator



Vertical Air-flow Evaporator



Blower Evaporator for free air delivery

REMOTE SYSTEMS for 2, 3 or 5 hp cooling. Easily added to any new or existing forced warm air heating system. Where steam or hot water heating is already installed, the blower-equipped evaporator provides air distribution. Refrigerant circuit covered by 5-Year Protection Plan.

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Contact your local American-Standard Air Conditioning Division distributor for full details



AMERICAN-Standard

AIR CONDITIONING DIVISION

Now Representing...

Kramer Trenton Co.—Appointment of OTTO M. KERSHOCK, previously with Frigidaire Sales Corp., as Philadelphia sales representative has been announced. His office will be in Drexel Hill.

Bendix-Westinghouse Automotive Air Brake Co., Evansville Div.—DEAN L. HEGLIN has been named representative in New Mexico, Colorado, and Wyoming with headquarters in Denver. He was manager of Thermo Supply, Inc. of Denver.

Worthington Corp.—DEKE JONES CO., Detroit, has been appointed Michigan wholesaler of air conditioning equipment.

McQuay, Inc.—R. B. GRISBROOK, REFRIGERATION COMPONENTS CO., St. Louis, has been named refrigeration sales representative for Missouri, Kansas, southern Illinois, western Kentucky, and northern Indiana. **WEEKS & CO., Boston**, will handle all of New England in refrigeration sales; **JOHN SALES ASSOCIATES, Millburn, N. J.** will cover northern New Jersey and New York; **THOMAS SHOTTON, JR., Washington, D. C.** will handle eastern Pennsylvania, southern New Jersey, Maryland, Delaware, Virginia, and Washington; **JOE E. PARKER, Atlanta**, will handle North and South Carolina, eastern Tennessee, Georgia, Alabama, and Florida; **H. A. PIETSCH, Pittsburgh**, also heating and air conditioning representative, will cover northern West Virginia and Pittsburgh area. **HAROLD O. KNAPE & CO., Houston, Texas** will serve as sales representative for heating and air conditioning products.

H & H Tube & Mfg. Co.—Appointment of PARSONS-ELLIS CORP., Indianapolis, as sales representative for Indiana has been announced.

Amara Refrigeration, Inc.—ELECTRIC APPLIANCE DISTRIBUTORS, INC., Altoona, Pa., has been appointed distributor of freezers, freezer-plus-refrigerators, and "Deepfreeze" freezers for 11 counties in central Pennsylvania. **HANDWERG DISTRIBUTING CO., INC., Tampa, Fla.** has been appointed distributor for refrigeration products and room and central air conditioners for 19 counties in central and western Florida. **BOMA DISTRIBUTORS, INC., Birmingham, Ala.** was named distributor for all products in all but seven Alabama counties. **TECCA DISTRIBUTING CO., Cleveland**, will serve a 20-county area in northeastern Ohio for all products.

Crest Engineering, Inc. (Newark, N. J.)—Announces its appointment as major dealer for Worthington Corp. packaged and central station air conditioning equipment.

Farr Co.—Appointment of AIR FILTER SALES & SERVICE CO., Kansas City, Mo., as sales and filter service representative for that area was announced. Jack Murphy is manager of the operation.

La Crosse Cooler Co.—JESS W. BREWBAKER, Roanoke, Va., has been named sales representative in Delaware, District of Columbia, Maryland, Virginia, North Carolina, and West Virginia by the Vending Machine Div. and EVERETT T. REUTER, Red Bank, N. J., will cover New Jersey, New York, and Pennsylvania.

American Air Filter Co., Inc.—FRED M. ERICHSON, New Orleans, air filter, dust control, engine and compressor, and Illinois Engineering heating and ventilating products representative, has added Herman Nelson classroom unit ventilator and heating and ventilating products.

Gustin-Bacon Mfg. Co.—LEWIS FOGG, Sherman Oaks, Calif., has been named sales representative in southern California. **WILLIAM J.**

CROLLY, Denville, N. J., was named sales representative in northern New Jersey.

Bally Case & Cooler Co.—JOE BURNS has been appointed representative in the Chicago metropolitan area to cover northern Illinois, northwest Indiana, and southwest Michigan. **CROUCH DAIRY SUPPLY CO., Ft. Worth, Texas**, has been named exclusive distributor of ice cream display cases and dairy cases in Texas, Oklahoma, and New Mexico.

Gibson Refrigerator Co.—C. B. WOOD SALES CO., Dearborn, Mich., has been named Detroit area distributor of this division of Hupp Corp.'s refrigerators, freezers, free-standing and built-in ranges and ovens, residential air conditioners, and commercial heating-cooling packaged units.

Thermo-Products, Inc. (N. Judson, Ind.)—DEANE W. CHALLIS has been named sales representative in charge of heating and cooling equipment sales in Wisconsin.

Slant/Fin Radiator Corp. (Richmond Hill, N. Y.)—LEE JACOBSEN has been named sales representative for central and southern Illinois, R. WENDELL FRANKS for Indiana.

Trane Co.—Several companies have been appointed authorized distributors for packaged air conditioning equipment.

CAROLINA SALES CORP., Greenville, S. C.; **AIR CONDITIONING & HEATING CO., Nashville, Tenn.**; **GENERAL HEATING & AIR CONDITIONING, Dallas, Texas**; **EDWARD COOLING & HEATING CO., Cincinnati**; **HAGGERTY & SON, Philadelphia**; **J. LAWRENCE HALL CO., INC., Nashua, N. H.**; **E. A. WILSON CO., Lowell, Mass.**

BROCKTON AIR CONDITIONING & SHEET METAL, Brockton, Mass.; **ULTRA COMFORT ENGINEERING CO., INC., Roxbury, Mass.**; **HANCOCK ENGINEERING CORP., Boston**; **R. C. JONES, JR., New York City**.

TEMPERATURE DESIGN CORP., FEDERAL AIR CONDITIONING CORP., and KOOLER-AIRE CONDITIONING CO., INC. all of New York City; **CONDITIONAIRE, INC., White Plains, N. Y.**

E. ROBISON, INC., Hartsdale, N. Y.; **SIMONS REFRIGERATION EQUIPMENT CO., ELECTR-ICE MAINTENANCE CO., KNICKERBOCKER REFRIGERATION CORP., and INDUSTRIAL AIR CONDITIONING CO. of New York City**.

HOME MAINTENANCE CO. and BEATTY ENGINEERING CO. of Dallas; **AIR CONDITIONING CO., Newport, Ky.**; and **HETTINGER & SHUCK, Louisville**.

High Court Issues 2 Labor Law Decisions

WASHINGTON, D. C.—An employer violates the Taft-Hartley act if he insists on a clause in a contract requiring a poll of all employees, union and non-union, before a union can call a strike, the U. S. Supreme Court recently ruled.

The High Court held it was also an unfair labor practice for the employer to refuse to recognize the international union in a contract and recognize only its local.

Two issues occurred in a labor dispute between Wooster, Ohio division of Borg-Warner Corp. and the International Union of United Automobile Workers and chartered Local 1239.

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...check valve with the versatile T-S connection now offers you 30 different installation combinations with just four sizes of valves: 1/4", 3/8", 1/2", 3/4".

Let Magni-Chek reduce your inventory and give you a saving in bulk, weight, and dollars.

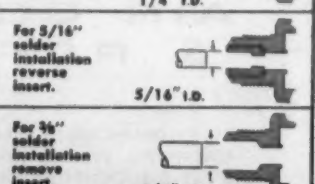
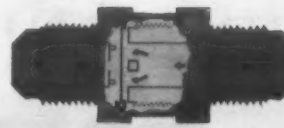
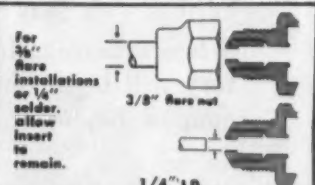
Only Magni-Chek offers you two very important features.

First of all, a check valve with no springs and therefore no back pressure. Only a small floating disc controlled by a lifetime alicine magnet does the work.

Secondly the T-S (thread-solder) connection, which is a standard male flare fitting with removable inserts for flare or solder or combination of both, offers complete versatility of installation with no additional parts or tools being required.

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EXAMPLE: MTS-6 (1/4")



Magni-Chek can be installed in any position without affecting performance!



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Refrigeration Problems And Their Solution

(As Written by Paul Reed)

Answer to An Ammonia Problem (1)

QUESTION:

I have an ammonia problem on which I would like your advice. This job is a York 3 x 3 D working on a high side float with surge drum, on a locker room held at -5° F.

About six weeks ago, the customer called and said that the unit was tripping out on high head, with the high pressure gauge registering about 180 lbs., even after the unit had been shut down for several hours.

I assumed, and I believe correctly, that there was air in the system. I purged it flat and the unit ran O.K. for two weeks, when we again received a call—same complaint.

Again I purged, but after doing so, the pressure built up from 0 lbs. to 220 lbs. within five minutes time and tripped out again. I purged it again and this time it ran O.K. Again this past week we received another call for the same complaint. I had to purge the condenser twice, just as previously, before it would run normally.

This unit has been in operation for six years and it never gave this kind of operation before. I am sure that it is air or non-condensable gas, because I can see air bubbles coming up through the water into which I am purging. I purge just as it should be purged, keeping the water flowing through the condenser while I am purging. Of course, I purge from the top of the condenser.

Where is this non-condensable gas coming from? I suspected a leak somewhere in the low side or through the shaft packing, but assuming that there is a leak on the low side, why doesn't the NH_3 leak out during the off cycle when the low side pressure builds up to about 20 lbs.? There are no apparent leaks. The unit was short on NH_3 , and on the last call I added some.

The only thing I can think of is that the temperature of the gas gets up above its critical temperature of 271° F., but I don't believe so, as there is plenty of cold water available. Besides, I have cleaned the condenser.

Is it possible for NH_3 to break down? I have read somewhere that one authority claims NH_3 will break down, and another claims that it will not, that is, assuming normal head and back pressures.

The average pressures when the unit is in normal operation are 150 to 180 lbs. head pressure, and a suction pressure of about zero gauge, sometimes going into a slight vacuum.

I am really stumped on this one, and I would appreciate some help.

ANSWER:

In your letter, you mention that on your first call, the customer reported that the high pressure gauge read 180 lbs., several hours after the machine cut off on the high-pressure cut-out. The customer could have been mistaken; perhaps he confused the normal reading with the reading after protracted shut-down.

Assuming, however, that he was correct, the presence of non-condensable gas in the system is rather clearly indicated. Certainly 180 p.s.i.g. is too high for a static condition of the condenser, for 180 p.s.i.g. corresponds to a saturation temperature of the ammonia of about 94°, which seems unlikely.

WHAT NON-CONDENSABLES ARE:

Non-condensables in a refrigerating system, in particular an ammonia system, can consist of air, gases of decomposition of the ammonia or of the oil, or gases formed by some chemical reaction between the ammonia, oil, and moisture, on some material in the system.

Air is the most likely suspect. It is not unusual to find air in the smaller systems that have been "purged" when the system was installed instead of pumping a good vacuum on the system before the refrigerant is charged into the system. This apparently does not

apply to your system, which operated successfully for six years with normal head pressures of from 150 to 180 p.s.i.g.

Air can be drawn into a system through a leak or leaks on the low pressure side of the system. The fact that your system operates at a normal suction pressure of about zero gauge, going into a slight vacuum at times, makes it more than likely that there was and probably still is, a leak somewhere on the low pressure side of your system. The fact that the system was low on charge, seems to confirm this, although it may have been due to ammonia lost during purging.

You mention that you tested the system for leaks, but it is rather easy to miss a leak on the evaporator coil in a -5° room. It is usually well frosted, which makes it difficult to test. Moreover, it is difficult to get enough pressure in this cold coil, which is running at about -30° F.

Even though you made the leak test during the off cycle when the low side pressure is 20 p.s.i.g., a

small leak, or worse, several small leaks, may be very difficult to find.

It is suggested that, with the compressor idle of course, you bypass some condenser pressure into the low side and build up its pressure if possible to 50 p.s.i.g. This may enable you to locate some hitherto undetected leaks. Pay careful attention to the shaft stuffing box. It may leak with the flywheel in a certain position.

The evidence points toward a leak or leaks somewhere in the low pressure side of the system. You should make every effort to find them; or at least determine that, without question, there is no leak.

DECOMPOSITION OF AMMONIA

While there is a difference of opinion on whether a breakdown of ammonia occurs in a compression system, the general belief throughout the industry is that it does. Whether this happens below the critical temperature of 271.2° F. or whether a high enough temperature is attained by "wire-

drawing" of the gas through the discharge valves, will be left to others more competent to judge.

Certainly, it is true that some non-condensables can be purged from most ammonia systems from time to time. Ordinarily, the amount of non-condensables formed within a couple of weeks would certainly not be in the quantity that you have found in your system.

Certain oils appear to give off non-condensable gases. If new oil was added to this system just prior to the start of the trouble, you would be wise to drain the crankcase and replace the oil with approved oil.

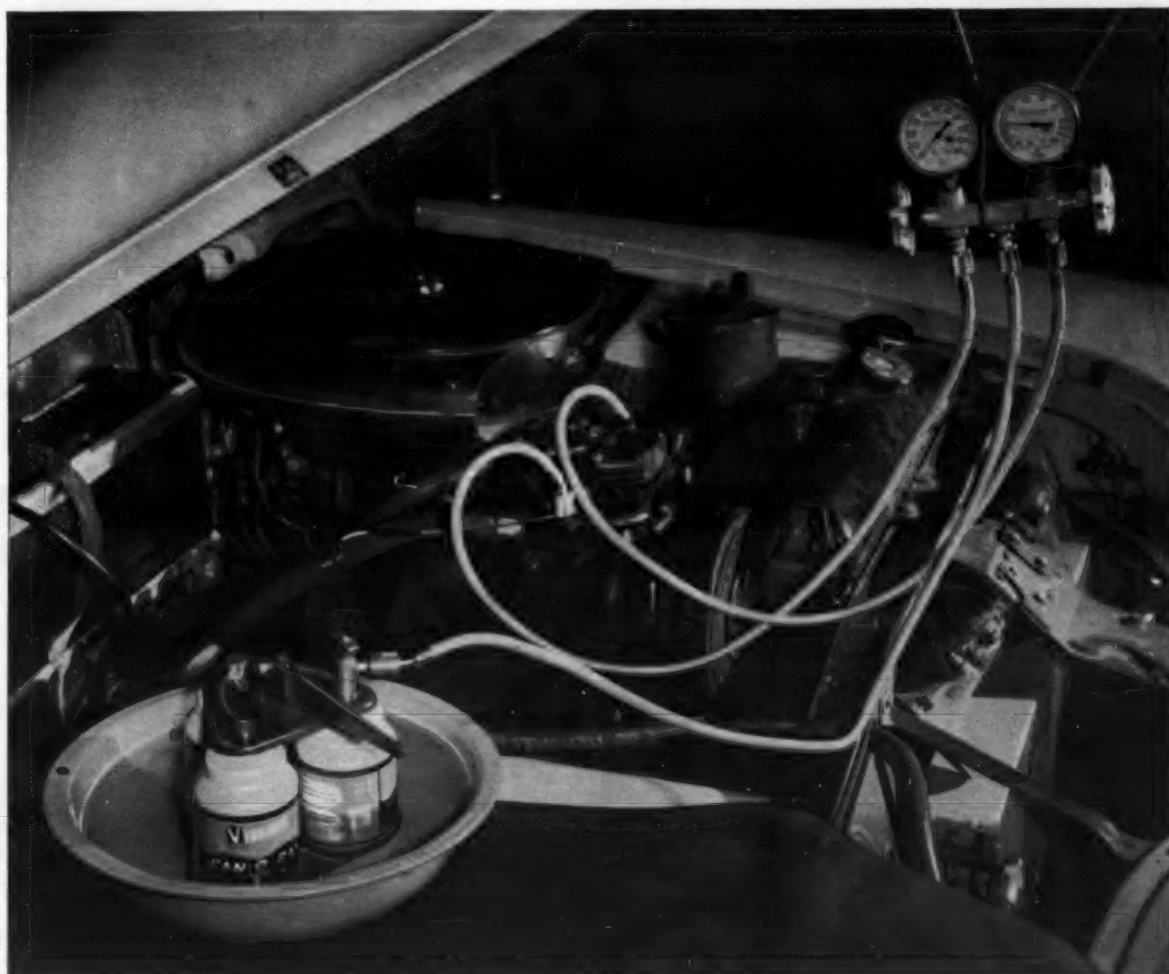
(To Be Continued)

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Typical Can-O-Gas multi-opener hookup.

**NOW! A SIMPLIFIED METHOD for charging
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"Virginia's" new Multi-Opener devices for Can-O-Gas provide, for the first time, an easy method of adding preweighed charges of refrigerant. Amounts from 16 oz. to 60 oz. can be precision measured without scales or other calibrating devices.



#2 Multi-Opener . . . 30-oz. charge #3 Multi-Opener . . . 45-oz. charge #4 Multi-Opener . . . 60-oz. charge

The multi-opener devices for Can-O-Gas pictured here provide the simplest and most

economical way of recharging automobile air-conditioning units. There are 5 reasons:

- Simultaneous opening and dispensing of 2, 3 and 4 cans of refrigerant provides a preweighed charge of 30 oz., 45 oz., 60 oz., or combinations thereof.
- Vapor pressures for gas phase charging are more easily maintained by warm water immersion.
- No heavy steel cylinders to lug around; no deposits to pay. Just throw the empties away.
- Contamination by moisture and noncondensable gases is avoided.
- Charging or recharging can be readily done away from the shop.

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TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Arithmetic In Practical Work

Perhaps the greatest weakness at sub-engineering levels in the heating and cooling industry is the inability of servicemen, installers, and some contractors to solve mathematical problems.

Especially in the case of the self-trained serviceman, we find men who are expert mechanics, very good servicemen, but who flounder when presented with a problem in fairly simple arithmetic. This basic weakness is very evident in the several manufacturers' heating and cooling schools where the pace of learning is measurably slowed when calculations are introduced.

Recognizing this shortcoming in the industry, some are attempting to have a chapter on basic math incorporated into the RSES Study Course. Others are looking for some method to reach the thousands of persons who would profit from a refresher course in arithmetic and beginning algebra.

Reader Knows Formula, But Can't Solve It

That the lack of arithmetic ability can have a practical bearing on daily work is demonstrated by a very sincere letter we received from a reader in Michigan. This gentleman is attempting to determine the U factor for a small room. He has the correct formula; he has picked the correct constants from a data book; but he is stumped by the actual arithmetic operations necessary to solve the equation.

In his own words, "I can put the formula down as recommended, but I am unable to solve it."

Using Celotex, wood, and sawdust in a room 8 by 10 by 12, our reader is attempting to determine the over-all coefficient of heat transmission from the data and K factors available. His specific problem was submitted to several pertinent companies for authoritative solution. Answers were returned by Armstrong Cork Co., Owens-Corning Fiberglas Corp., and Pittsburgh Corning Corp.

The final answers received were 0.061, 0.061, and 0.068—the discrepancy in the third place being accounted for by differences in rounding off and in a couple factors.

Because this specific use of mathematics is of general interest,

we are publishing almost in full the detailed procedure submitted by J. E. Gaston, Armstrong Cork Co., who recognized that our reader's difficulty was actually with arithmetic manipulation.

"Your reader has established the correct formula with the correct values substituted into the equation but is apparently unable to carry out the mathematics. The formula is the standard one for determining the over-all coefficient of heat transmission for a wall:

$$U \text{ (or } K) = \frac{1}{\frac{1}{f_1} + \frac{X_1}{K_1} + \frac{X_2}{K_2} + \frac{X_3}{K_3} + \frac{1}{f_0}}$$

"Using the figures from the ASHAE Guide for inside and outside surface factors and the K factors for insulating fiberboard, wood, and sawdust, we have the following equation:

$$U \text{ (or } K) = \frac{1}{\frac{1}{1.65} + \frac{0.5}{0.35} + \frac{6.0}{0.45} + \frac{0.75}{0.80} + \frac{1}{6.0}}$$

(Editor's note: To the uninitiated, the appearance of compound fractions with "fractions under fractions" is a bit unnerving, and it is at this point that our reader became confused.)

"The solution is as follows:

First, determine the numerical value of each part of the equation. Thus: $\frac{1}{1.65}$ means 1 divided by 1.65. This comes out to 0.61.

In the same way:

$$\begin{aligned} \frac{0.5}{0.35} &= 1.43 \\ \frac{6.0}{0.45} &= 13.33 \\ \frac{0.75}{0.80} &= 0.94 \\ \frac{1}{6.0} &= 0.17 \end{aligned}$$

Next, add all these numerical values together.

$$0.61 + 1.43 + 13.33 + 0.94 + 0.17 = 16.48$$

Finally, divide 1.0 by this number to obtain the over-all coefficient of heat transfer of the wall.

$$\frac{1}{16.48} = 0.061$$

The steps can be summarized like this:

$$\begin{aligned} \frac{1}{\frac{1}{1.65} + \frac{0.5}{0.35} + \frac{6.0}{0.45} + \frac{0.75}{0.80} + \frac{1}{6.0}} &= \\ \frac{1}{0.61 + 1.43 + 13.33 + 0.94 + 0.17} &= \\ \frac{1}{16.48} &= 0.061 \end{aligned}$$

The same procedure on the ceiling would be shown as follows:

$$\begin{aligned} \frac{1}{\frac{1}{1.65} + \frac{0.5}{0.35} + \frac{16}{.45} + \frac{1}{6.0}} &= \\ \frac{1}{0.61 + 1.43 + 35.56 + 0.17} &= \\ \frac{1}{37.77} &= 0.026 \end{aligned}$$

Gaston goes on to point out that, from practical experience he would like to caution the reader on some points. "The reader is obviously using a wall construction with a 3/4-in. wood as one side and 1/2-in. insulating fiberboard as the other side, separated by a 6-in. space to be filled with sawdust. The ceiling is to be similar but with a 16-in. layer of sawdust.

"We would question the ability of 1/2-in. insulating fiberboard to withstand the bulging tendency of sawdust in the walls, and, if it is to be used on the inside of the room, know it will not carry the load of 16 in. of sawdust in the ceiling without bulging badly. Sawdust will swell when it becomes damp, and the forces exerted could even push the insulating board off the nails.

It would be better to use non-hygroscopic insulation for a chiller and the warm side should be well sealed with a vapor barrier to prevent condensation occurring in the insulation and destroying its effectiveness."

ARE you in need of a "just right"

man to fill a slot in your organization—the man you are looking for will be reading the

NEWS' CLASSIFIED ADS

Fair In Padua, Italy To Feature Refrigeration From May 31 to June 15

PADUA, Italy — A special pavilion for display of refrigeration plant and equipment will be featured at the 36th annual International Samples Fair here May 31-June 15.

A national refrigeration conference, in which U.S. technicians in the refrigeration industry are invited to take an active part, also will be held for three days, June 1-3, during the fair.

Conference theme will be prefabrication, transport refrigeration, developments in refrigerating equipment.

American firms interested in displaying at the fair or arranging for participation in the conference should write to Dr. Mario Saggini, president, Fiera di Padua, here.

Remove Scale quickly and safely with anco CONDENSER CLEANER

You simply dissolve ANCO Condenser Cleaner in the sump while the system is in operation for effective results. Within 2 to 15 hours, depending on the thickness of the scale, the condenser tubes are cleaned. High head pressure caused by fouled tubes drops to normal and operating efficiency is restored. ANCO Condenser Cleaner can be safely used without damage to metals and is not hazardous to handle. Try it once and you'll use it always.



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How much quality can you build into a Filter-Drier?

When manufacturers talk about filter-drier quality, fair questions are "What is it, and how did it get there?"

With the Remco Super-Flo, quality is (1) massive depth filtering to remove foreign particles, (2) peak drying efficiencies even at 150° F liquid line temperatures, (3) acid control, and (4) no measurable pressure drop.

The quality got there through mass manufacturing procedures which also dropped Super-Flo prices to the lowest in the industry.

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THRU WHOLESALERS
EVERYWHERE

REMCO INC.
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CRMA Meeting Agrees--

(Concluded from Page 1, Col. 3)
sion than is now in evidence to seriously curtail the demand for the commercial refrigeration industry's products.

Each participant emphasized the fact that the retail food business is inherently one of the most stable, if not the most stable, markets in the entire economy.

One panel member pointed out that at the lowest level reached in the big depression of the early 1930's, consumption of foods dropped only 8%, in contrast to much greater shrinkages in other fields.

It was further emphasized that combined food store sales thus far in 1958 are running well ahead of last year. Most food operations are not only making money, but some have reported substantially increased profits, it was noted.

'Actual Amount of Food Stays Same'

"People may switch from steak to hamburger," Hill remarked, "but the actual quantity of food consumed remains the same. If it is perishable, it has to be refrigerated."

Members of the panel, which included Frederic A. Celler, vice president of Brewer-Titchener Corp.; J. H. Coolidge, president of Sherer-Gillett Co.; and W. B. McMillan, board chairman and president of Hussmann Refrigerator Co. could not agree on the duration of the present shakedown.

Opinions ranged from a prediction that a pronounced upturn would get under way by late this year to a suggestion that full recovery might not be achieved until well into 1960.

'Present Period Is Between Booms'

They concluded that the present period can be considered as a "between booms" breathing spell, while much-needed and long overdue adjustments are made. Particularly for the commercial refrigerator industry, the present situation can be regarded as normal for a variety of reasons.

Another panel warned that any reduction in money spent for maintaining or increasing sales simply for the sake of effecting a paper saving is as unwise as to plunge indiscriminately into any phase of promotional activity without proper evaluation.

'Consistent Program'

A consistent program, if it has proven productive in the past, is best, concluded William Fogel, president of Fogel Refrigerator Co.; J. D. Harris, president of the Warren Co.; and Joseph W. Krall, president of McCray.

Hand-to-mouth inventory policies are foolish, they also agreed. A properly balanced inventory, that is keyed to production control schedules, is an operational "must."

The panel strongly condemned any thought of departing from conservative credit policies. They pointed out that in recession periods risks are always greater.

The same counsel was given by a special task group that had been asked to survey present

credit conditions in the industry. This group consisted of Mark Allen, treasurer of Weber Showcase & Fixture Co., C. H. Chadwell, vice president of Friedrich Refrigerators; and W. R. Clouse, vice president of McCray.

They reported that there is a surprising lack of pressure for smaller down payments and extended terms. On the hole, they found nothing to suggest that any departures from normal financing methods is indicated.

'Labor's Attitude Won't Change'

Another panel opined that the probable attitude of organized labor in future negotiations for higher wage rates and other concessions would be virtually unchanged.

Julius Brinkoeter, first vice president of Friedrich Refrigerators; Glen J. Doyle, manufacturing vice president of C. V. Hill & Co.; and S. D. Vander Weg, manufacturing vice president of Tyler Refrigeration Corp., indicated that the only question will no doubt be "how much?"

They felt that while the present atmosphere is slightly more favorable to management, such recently conceived "gimmicks" as profit-sharing, a four-day week, etc., have only been temporarily played down. They will receive full attention as soon as an upturn occurs.

Sanitary Standard

William T. McCall, president of McCall Refrigerator Co., announced on behalf of the food service equipment section of CRMA that a sanitation standard for reach-in refrigerators was being planned. National Sanitation Foundation is the sponsoring agency.

Dunham-Bush To Move Some Production--

(Concluded from Page 1, Col. 2)
units to the local plant. At that time the Utica plant will be sold.

Another change announced as part of the company's long-range program of streamlining operations for greater efficiency is the centralization of all research and development activities at the West Hartford plant. Boling pointed out that this concentration will eliminate costly

overlapping of basic engineering effort and effectively combine technical resources of the company's several plants.

Commenting on the announced changes, Boling emphasized that the moves, in the planning stages for some time, represent a major step in long-range planning aimed at achieving maximum efficiency in the operation

of the company's several plants. "Substantial operating economies will be effected," he reported, "by making fullest use of existing extra plant capacity in Michigan City, and by assuring full production schedules in our West Hartford plant."

Executive offices of the company will continue to be located at West Hartford.

Whirlpool--

(Concluded from Page 1, Col. 4)
tive officer of the company.

The move was made, according to a letter Gray sent to stockholders, because "long range planning and coordination of the programs we now have under way . . . will require increased and sustained top level attention."

Brooker, Gray added, has been a director of Whirlpool since 1951 and is "intimately acquainted with our operations." In that same year Brooker was named vice president in charge of Sears' factory division. He was elected to the Sears board of directors the following year and will continue to sit on the Sears board.

Gray joined the Nineteen Hundred Corp., predecessor of Whirlpool in 1939. He became vice president in 1940, director in 1943, executive vice president in 1947, and was elected president in 1949.

Whirlpool's board of directors has added two new members, it was reported, bringing its total to 11.

Latest additions are Charles H. Kellstadt, newly-elected president of Sears, and Robert C. Upton, a Whirlpool vice president.



Klixon Protectors help save customers expense of major motor repairs —says motor repair shop owner

OWEGO, N. Y.: Harold Lange, owner of Lange's Motor Service, knows the value of Klixon protected motors. Here's how he puts it:

"The Klixon motor protector is the best detective for motor troubles, saving the customer from major motor repairs."

KLIXON Protectors reduce service calls and repairs by preventing motor burnouts.

The KLIXON Protector, illustrated, is built into the motor by the motor manufacturer. In such equipment as refrigerators, oil burners, washing machines, etc., they keep motors working by preventing burnouts. If you would like increased

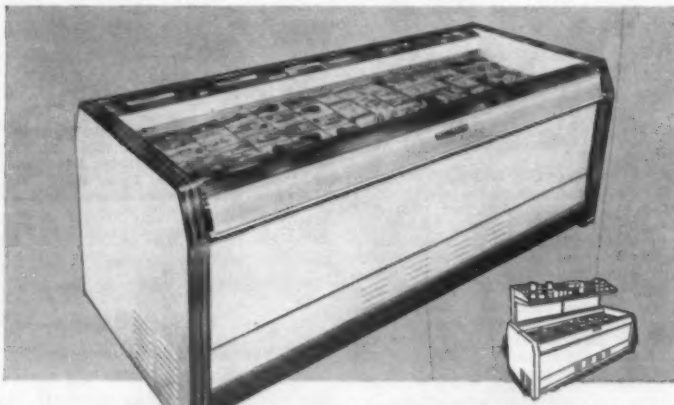
customer-preference, reduced service calls and minimized repairs and replacements, it will pay you well to ask for equipment with KLIXON Protectors.

WRITE FOR THE NEW FREE INFORMATIVE BOOKLET, "THE STORY OF THE SPENCER DISC."



Single Phase

METALS & CONTROLS CORPORATION
Spencer Division 2406 Forest Street, Attleboro, Mass.
KLIXON



Ice cream stays brick hard in Warren's new Self-contained

Strictly brick hard ice cream day and night—day in, day out—thanks to drastic subfreezing temperatures and a sure, unique defrosting system. Proved performance in tropical and high-humidity climates. A wide-open display and a more-than-generous capacity, too.

A one-shelf merchandising canopy, of the same top-quality materials and workmanship as the cabinet itself, is optional. The adjustable shelf adds impact to impulse items or even staples, and invaluable economy from this maximum use of floor space. The cabinet is genuine porcelain and the canopy, baked enamel—both finishes acid resistant and rugged. The good looks is Warren Diamond Jubilee styling. Warren COLORAMICS® bands optional at no extra cost.

There's no simpler, surer way to block-busting packages of ice cream, merchandised right, than in the new Warren Self-contained.

Warren Refrigerators

P. O. BOX 1436 ATLANTA 1, GEORGIA

EXPORT DIVISION: P. O. BOX 27884, LOS ANGELES 27, CALIFORNIA

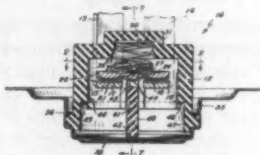
PATENTS

Week of Feb. 18
(Continued)

2,923,940. REFRIGERATOR DOOR SAFETY RELEASE. Herbert D. Squire, Galesburg, Ill., assignor to Midwest Mfg. Corp.

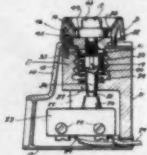
1. In combination, a casing having an opening in one wall thereof, an actuator pivotally mounted on the casing, an operator extending freely through said opening in the casing and terminating within the casing in a head which is larger than said opening and which at its inner end presents a recess facing away from said opening in the casing and defined by op-

2,924,194. SWITCH STRUCTURES. John O. Moorhead, Attleboro, Mass., assignor to Metals & Controls Corp., Attleboro, Mass.



1. In combination, a pair of spaced electrical contacts, a bridging, electrical contact member movable in opposite directions into and out of engagement with said spaced contacts, said bridging contact member having a first surface convexly curved along a plane intersecting said bridging contact member and said spaced contacts, a transfer member having a flat surface movable against said convexly curved surface substantially midway between said spaced contacts to move said bridging contact member away from said spaced contacts in one of said opposite directions. . . .

2,924,195. ELECTRICAL THERMOSTAT. Samuel G. Eskin, Chicago, Ill., assignor to The Dole Valve Co., Chicago, Ill.



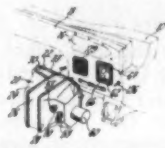
1. In an electrical thermostat particularly adapted for air conditioners and the like, a body, a switch on said body adapted to make and break a main line circuit, said switch having a depressible button for operating the same, a knob on the outside of said body having a central recessed portion opening to the outside of said body and having a core threaded within said body and having an open central portion in communication with said recessed portion. . . .

Week of Feb. 25

2,924,427. VEHICULAR AIR CONDITIONING SYSTEM. Albert Daniel Baker, Lansing, Mich., assignor to General Motors Corp., Detroit, Mich.

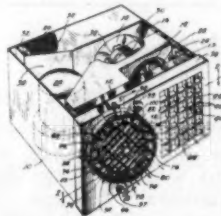
1. A vehicular air conditioning system for a body having a cowl air inlet, a fire wall, a passenger compartment and a passage leading forwardly from

said inlet to the rearward side of said fire wall, said system comprising an evaporator casing mounted on the



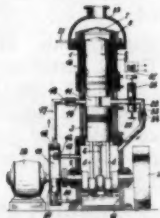
forward side of said fire wall and adapted to communicate with said passage, a cooling core in said casing. . . .

2,924,429. MEANS FOR CIRCULATING AND DISTRIBUTING AIR. Armand S. Zucker, Chicago, Ill., assignor to Mitchell Mfg. Co., Chicago, Ill.



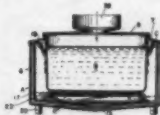
8. In an air conditioner of the character described having an air inlet for passage of air from the room into said air conditioner and an air outlet for passage of conditioned air from said air conditioner into said room, said air outlet having a rotor, said rotor having means impinged by the air from said air conditioner to cause said rotor to operate. . . .

2,924,430. COLD-GAS REFRIGERATOR CONTROL SYSTEM. Herre Rinia, Jose Jan Willem den Haan, Albert August Dros, and Franciscus Lambertus Van Weenen, Emmasingel, Hindhoven, Netherlands, assignors, by means assignments, to North American Philips Co., Inc., New York, N. Y.



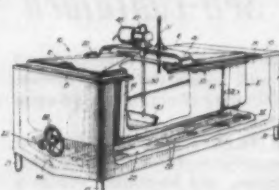
2. A cold-gas refrigerator comprising a cylinder, a piston and a displacer mounted for reciprocable movement in said cylinder, a pair of spaces of variable volume in said cylinder, a freezer, a regenerator and a cooler in series and interconnecting said two spaces of variable volume, an auxiliary space. . . .

2,924,431. MILK-COOLING STORAGE TANK. Robert L. Pearson, Chicago, Ill., assignor, by means assignments, to Craft Mfg. Co.



3. A milk-cooling storage comprising, an open-top insulated housing, a refrigerating coil disposed adjacent the bottom of the housing nearly co-extensive therewith, a tank suspended in the housing above but not in contact with the refrigerator coil, spray means arranged around the perimeter of the housing to direct a water spray exteriorly onto the walls of the tank for drainage down to and over the refrigerator coil and collection in the bottom of the housing. . . .

2,924,432. LIQUID COOLING SYSTEM. John E. Varese, McHenry, and Clifton D. Wagner, Chicago, Ill., assignors to Craft Mfg. Co., Chicago, Ill.

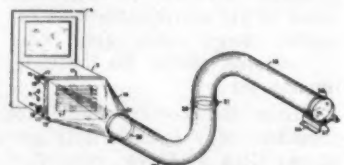


3. Heat exchange apparatus adapted for utilizing a heat exchange liquid comprising a tank, a container for said heat exchange liquid, a heat exchanger immersed in the liquid, and a circulating system for passing said liquid across said tank and said heat exchanger whereby said liquid provides a heat transfer medium between the tank and the heat exchanger, said circulating system including liquid jet flow means submerged in said liquid adjacent one end of said heat exchanger below said tank and associated closely enough to said heat exchanger to substantially increase the heat transfer efficiency between the liquid and the heat exchanger. . . .

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

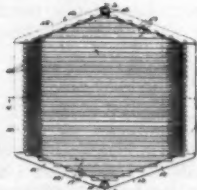
Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Address orders to: Commissioner of Patents, Washington 25, D.C.

2,924,575. AIR CONDITIONER ATTACHMENT. Shy Rosen, New York, N. Y., assignor to Milprint, Inc., Milwaukee, Wis.



A portable and collapsible attachment for an air conditioning unit having a conditioned air outlet, said attachment comprising, a flexible collapsible plastic hood having a mouth and a discharge aperture remote from the mouth, an expandable band confined within and circling the mouth of said hood. . . .

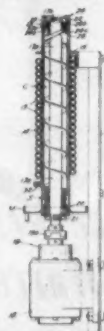
2,924,720. CONDENSER FOR REFRIGERATION SYSTEMS. Allan N. Johansson, Framingham Center, Mass., assignor to the United States of America as represented by the Secretary of the Army.



1. A condenser for refrigeration systems comprising a polygonal tubular frame including substantially vertical sides and top and bottom substantially V-shaped ends having high and low points, inlet and outlet opening means for the high and low points of said V-shaped ends, a plurality of substantially horizontal tubes extending entirely across the frame and opening into said vertical sides and the sides of the V-shaped ends, and a plurality of fins carried by said horizontal tubes. . . .

Week of March 4

2,925,208. APPARATUS FOR PRODUCING COMPRESSED ICE CHIPS. Marcus L. Nelson, Albert Lea, and Benjamin K. Roberts, Lyle, Minn., assignors to Queen Stove Works, Inc.

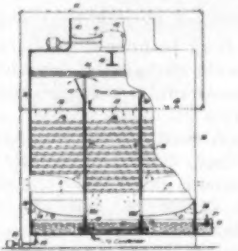


1. An ice chip producing machine comprising an elongated hollow cylindrical member defining a cylindrical freezing chamber therewithin and having one end thereof disposed at a higher elevation than the other with means for sealingly closing the lower end, water supply means for delivering a supply of water to the inside of the freezing chamber, refrigeration means for cooling said freezing chamber to freeze portions of the water supplied thereto on the inside wall of said chamber, an ice conveying auger axially journaled for rotation within said chamber and for extending upwardly therethrough. . . .

2,925,210. HEAT EXCHANGE APPARATUS. Clifford H. Carr, Kansas City, Mo.

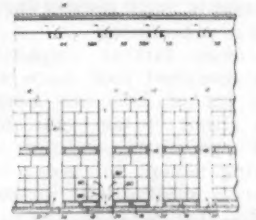
2. In a heat transfer device of the character described, a conduit, a heat conductor plate disposed longitudinally of said conduit and extending through the wall thereof so

that a first portion of said plate projects inwardly into said conduit with both sides exposed to flow through



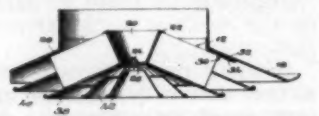
said conduit and a second portion extends outwardly beyond the exterior of said conduit. . . .

2,925,211. PRECOOLING OF PACKAGED PRODUCE. Vincent Gessel, Pasadena, Calif.



1. In the refrigeration of packaged produce the improvement which involves stacking the packages one upon the other in a room to a height less than the ceiling height to form a plurality of stacks spaced from each other, directing jets of cold primary air downwardly into the spaces between the stacks to cool the produce so that spent secondary air circulates out of the spaces between the stacks to the space above the rows of stacks, and withdrawing the spent secondary air from the space above the rows of stacks. . . .

2,925,274. AIR OUTLET DEVICE FOR VENTILATING APPARATUS. Franz J. Kurth, Mamaroneck, N. Y., and Friedrich Honerkamp, West Hartford, and Leonard E. Phillips, East Hartford, Conn., assignors to Anemostat Corp. of America, New York, N. Y.



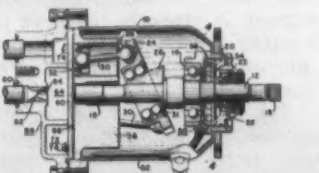
1. An element to be disposed transversely across the path of flow of supply air delivered into an enclosure to intercept the supply air and to deflect it laterally outwardly, said element having, with reference to the direction of flow of the supply air, rearwardly opening forwardly closed radially extending channels which are open at their outer ends whereby supply air delivered against said element is divided into separate laterally spaced apart radially outward flowing streams. . . .

2,925,338. APPARATUS FOR PRE-AMPUTATION FREEZING. Herman C. W. Schnepf and Robert C. Webber, Indianapolis, Ind.; said Schnepf assignor to said Webber.



Apparatus for freezing a limb extremity preliminary to amputation, comprising a cabinet formed to provide a chamber, closed except for an entryway at one side, evaporator coils outside said chamber in heat-exchange relation to the walls of said chamber, heat-insulation means outside said chamber, means enclosing said insulation means and said coils and cooperating with said chamber walls to seal said insulation means hermetically from the circumscribed atmosphere. . . .

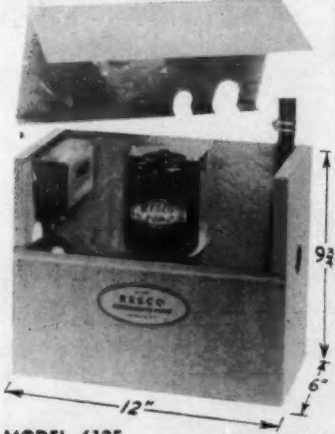
2,925,496. REFRIGERATING APPARATUS. J. Lowell Gibson, James B. Hornaday, and John H. Heidorn, Dayton, Ohio, assignors to General Motors Corp., Detroit, Mich.



1. In a refrigerant compressor, an open ended sheet metal casing element, a cast cylinder block closing one end of said sheet metal casing element and having a plurality of horizontal cylinder bores arranged about a central (Continued on next page)

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POSITIONS WANTED

AVAILABLE, ON or before July 1st, a man with 20 years' background, as field service engineer and service manager, in all phases of refrigeration and air conditioning. Have worked with Carrier, York, G.E., Scotsman, etc. Also McCray & Hussmann store fixture installation. Will consider East or West coast of Florida. BOX A6029, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

EXPERIENCED SALESMAN for wholesale refrigeration supply company. Top salary. Apply—James Maguire, ACE REFRIGERATION SUPPLIES, Miami, Florida.

OPPORTUNITY for manufacturer's representative: To increase your earnings, sell a full line of freezers, beverage coolers, display cases, dual temperature reach-ins and walk-ins. We manufacture a quality line to meet competition. Agents wanted for new territories. Write HOWARD REFRIGERATOR CO., INC., 4745 Worth Street, Philadelphia 24, Pa.

WANTED—DISTRICT Manager. For New York and Pennsylvania area by manufacturer of super market line of refrigerated display equipment. Must have previous experience in order to qualify. Excellent opportunity for the right man. Replies kept strictly confidential. Send complete information in initial letter to BOX A6027, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

WANTED USED refrigerators in working condition—Large lots of same model from apartments or projects, anywhere in U.S. No assorted trade-ins. BEACH REFRIGERATOR CO., 196-11 Northern Blvd., Flushing 58, New York. Phone Flushing 7-6161.

EQUIPMENT FOR SALE

VP 809 A.S.M.E. 5 h.p. 208 volt 3 phase 60 cyc. A.C. Curtis air compressor with 20" x 50" National Board tank. Kinney DVD 8810 W/J poppet valve vacuum pumps with 5 h.p. 208 volt 60 cyc. 3 phase A.C. motors. 220 volt electrically heated separator tanks, 220 volt solenoid valves, V-belt drives complete with steel base. GUARANTY SERVICE, INC., 605 Springfield Ave., Newark 3, N. J. Bigelow 2-5600.

NATIONALLY FAMOUS brand new hermetic motor compressor domes at closeout prices! 1/4 h.p. only \$25.00. Other sizes up to 1 1/2 h.p. at equally low prices. Also, tremendous savings on complete hermetic condensing units ranging in size from 1/4 h.p. All brand new, all guaranteed. Send for listing and prices to MANN REFRIGERATION SUPPLY CO., 440 Lafayette St., New York, N. Y. GRamercy 3-8000.

WELL KNOWN brand condensing units: Open type (New) 1/4 hp air cooled - less motor \$55.00. 1 1/2 hp water cooled - less motor \$144.00. 3 hp water cooled - less motor \$175.00. FOB Chicago, Illinois. Send for bulletins and catalog on money saving refrigeration values: WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

MISCELLANEOUS

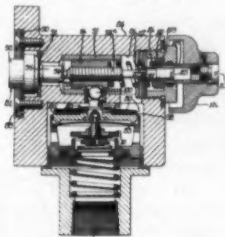
WANTED: OLD freight bills for conversion into unexpected refunds for your firm. Let our transportation experts analyze your freight costs. You pay only 50% of actual money recovered. For complete details write ATLAS TRAFFIC CONSULTANTS CORP., 47-11 43rd Ave., Long Island City 4, N. Y.

PATENTS

(Continued from preceding page)

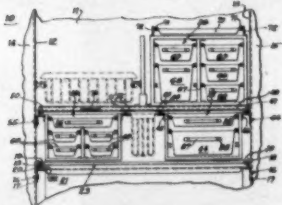
axis, means forming inlet and outlet ports for said cylinder bores, valve means for said ports, a cast end bell closing the other end of said casing element and cooperating with said cylinder block and said casing element to form an oil sump, a drive shaft journaled in said cylinder block and said end bell. . . .

2,825,507. **TEMPERATURE ADJUSTMENT FOR THERMOSTATS.** Samuel G. Eskin, Chicago, Ill., assignor to The Dole Valve Co., Chicago, Ill.



6. In a temperature adjustable thermostatically operated operating mechanism, a thermal element having a power member extensible upon predetermined temperature conditions, a plunger engaging said power member and rectilinearly moved thereby upon certain predetermined increases in temperature. . . .

2,825,517. **VARIABLE DRAWER ACCESSORY FOR HOUSEHOLD REFRIGERATORS.** Jonathan F. Morgan, Evansville, Ind., assignor, by mesne assignments, to Whirlpool Corp.



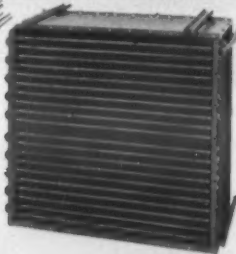
A variable drawer accessory for household refrigerators, comprising a rectangular frame comprising four rectangular bars secured together at their ends to form a rectangle, four additional bars secured together at their ends to form a second rectangle, four columns extending between the respective corners of the two rectangular frames and secured thereto, a plurality of rectangular U-shaped channels forming guides, and said guides having an equal number secured to the inside of two opposing pairs of columns. . . .

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Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

The Edsel auto air conditioner is the twentieth make to be discussed in this series. Makes previously described were A.R.A., Artic-Kar, Frigette, Frigikar, Kauffman, Mark IV, Airtemp, Mobilette, Novi, Vornado, Polar-Temp, American Motors, Buick, Cadillac, Chevrolet, Chrysler, DeSoto, Dodge, and Plymouth.

EDSEL

Edsel Div.
Ford Motor Co.
Dearborn, Mich.

SERVICE HINTS

At time of writing official service instructions had not yet been released by Edsel. It is safe to assume, however, that service complaints and procedures common to most automobile air conditioners will apply equally well to the Edsel system with the exception of those pertaining to the servo unit in the control system.

Evacuating System

A car air conditioning system should be evacuated following installation or opening the system for repairs to remove air and moisture prior to charging. The system may be checked for leaks before evacuation with a halide torch after some Refrigerant-12 has been permitted to enter the system.

The evacuation process itself, however, can show whether leaks are present because leaks won't permit a sufficiently low vacuum to be pulled. Such leaks would still have to be located, though, by using a halide torch with refrigerant in the system.

Various manufacturers of car air conditioners differ somewhat in their recommendations for evacuating, but a safe procedure would be to use a good vacuum pump and the double evacuation method.

The system should be pulled down to 26 to 28 in. of vacuum and held there by the vacuum pump for 10 to 20 minutes. Vacuum is broken with Refrigerant-12 and then the system is again pulled down to 26 to 28 in. and held there for another 10 to 20 minutes. The system will now be ready for charging.

Charging System

Complete charge in the 1958 Edsel air conditioner is 3½ lbs. of Refrigerant-12. The system is charged through the low side in the usual manner with refrigerant vapor, not liquid.

During the charging operation the air conditioning system is turned on and the engine operated at idle speed.

Preliminary data released on the Edsel charging method calls for 3 lbs. to be charged into the system initially followed by approximately ½ lb. more. The sight glass can be observed when the last ½ lb. is added to insure that no more refrigerant than is actually necessary is charged into the system.

Trouble Chart

Service procedures concerning the control system and servo unit have not yet been released by Edsel, but it can be assumed that improper opera-

tion of the servo unit motor, the rack and pinion assembly, or the cable connections to the thermostats (both cooling and heating) and air dampers could be among the causes of insufficient cooling or no cooling.

Failure of the outside air intake to close tightly, for example, could result in insufficient cooling. The same would apply to proper positioning of the damper directing air flow either through the evaporator or the heater core. Air leaks around the blower housing and the duct connections to the blower would allow heat from the engine compartment to enter the system during the cooling cycle, thus reducing the amount of cooling effect obtained.

In addition to the above comments, the following will serve as a guide to diagnosing service complaints on the 1958 Edsel conditioner:

Insufficient air velocity.
1. Low fan speed due to faulty blower motor or faulty wiring.

2. Evaporator clogged.
Poor cooling or evaporator frosting.

1. Shortage of refrigerant.
2. Liquid line restricted.
3. Expansion valve restricted.

4. Thermostat operating improperly.

5. Clutch slipping.
No cooling.

1. Liquid line or receiver clogged.
2. Thermostat faulty.

3. Broken drive belt.
4. Faulty clutch.

5. Lost refrigerant charge.
6. Blower not operating.

Too cool.
1. Faulty expansion valve.

2. Faulty thermostat.
3. Clutch won't release.

High head pressure.
1. Air in system.

2. Over-charge of refrigerant.

3. Condenser air passages clogged.

4. Engine overheating.
Low head pressure.

1. Shortage of refrigerant.
2. Faulty compressor.

High suction pressure.
1. Faulty compressor.

2. Clutch slipping.
3. Expansion valve bulb loose or improperly located.

Low suction pressure.
1. Liquid line restricted.

2. Evaporator dirty or clogged with ice.
3. Shortage of refrigerant.

(Next instalment will begin the discussion of the Ford auto air conditioner.)

Church Cooled

NEW ORLEANS—Construction has started on a new building for the True Love Missionary Baptist church at 2710 Philip St. Air conditioned, the structure will cost \$50,000.

Region 5 Wholesalers To Meet June 22-25 In Bedford Springs, Pa.

BUFFALO — Air-Conditioning & Refrigeration Wholesalers Region 5 will hold its annual spring meeting June 22-25 at the Bedford Springs hotel, Bedford Springs, Pa.

T. F. Jordan of Jordan Supply Co., Inc. here, region 5 chairman, announced that the program will include a thorough discussion of the position of the wholesaler and the manufacturer in relation to the present recession. Further details of the program will be revealed shortly, Jordan said.

Region 5 covers the states of Michigan, Ohio, Indiana, Kentucky, West Virginia, and western portions of New York and Pennsylvania.

Reading Tube Names 2 New Vice Presidents

NEW YORK CITY—Following the annual meeting of Reading Tube Corp., Martin Mack, president, announced the election of Joseph F. Muarry and Alvin Stolinsky as vice presidents.

For the past eight years, Murray has acted as general sales manager of Reading Tube and, since 1955, has served as a member of its board of directors. Henceforth he will function as vice president and general manager of sales.

Stolinsky, who started with Reading in 1941 as a clerk, became assistant sales manager in 1950. Four years later, he was elected a member of the board of directors. In 1957, following the acquisition of MacKenzie Walton Corp., he was made assistant general sales manager. His new post will be that of vice president and sales coordinator.

'Leak Lock' Tubes Come In Self Merchandising Cartons For Counter Display

CLIFTON, N. J.—A self-merchandising carton for displaying "Leak Lock" in tubes on counters and shelves has been developed by Highside Chemicals, Inc. here, manufacturer of the joint sealer.

The new carton contains a dozen tubes of "Leak Lock," which is for use in preventing leaks of reactive materials, including refrigerants. Approval for use with butane and propane gas was recently given by Underwriters' Laboratories, the company noted.

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Air Conditioning & Refrigeration News

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Oil Heat, Cooling Show To Draw 120 Exhibitors In New York City

(Concluded from Page 1, Col. 5)
ration and Writing of Specifications for Commercial-Industrial Oil Burning Equipment" with Kenneth M. Wilson, partner, E. F. Klingler & Associates, as guest speaker.

Twenty-seven topics are slated for discussion at the dealer management clinics Wednesday and Thursday mornings in the ballroom. Each of a panel of experts will speak on one topic for 15 minutes and then adjourn to a designated area for private consultation with dealers.

Among the subjects to be covered will be selling cooling and air conditioning equipment, increasing fuel oil sales in competitive gas areas, public relations, service contracts, trading stamp and merchandising programs, radio communications, etc.

Five papers will be presented at the technical symposium Tuesday morning:

"Research on Fuel Oil Combustion and Burner Design" by B. R. Walsh, Gulf Research & Development Co.

"A Burner Service Record System That Saves Time and Money" by M. S. Reed, Socony Mobil Oil Co.

"Vital Elements of a Good Oil Heating Installation" by R. L. Dennis, Boston Machine Works Co.

"Good Installation and Servicing Practices" by Albert Brand, Brand's Heat Control, Inc.

"An Installation Standard for Residential Oil Heating Equipment" by D. H. Botttrill, OHI technical secretary.

Meeting schedule of the OHI convention follows:

MONDAY, JUNE 9

9 a.m.—Annual meetings of Domestic Manufacturer section, Accessory Div., Commercial-Industrial sections, Technical Div., Distribution Div.

11 a.m.—Retiring OHI board and annual meeting of institute.

TUESDAY, JUNE 10

9 a.m.—Technical Div. symposium.

WEDNESDAY, JUNE 11

9 a.m.—Distribution Div. dealer management clinics.

10:30 a.m.—Commercial-Industrial invitational conference.

12:30 p.m.—36th annual OHI luncheon.

THURSDAY, JUNE 12

9 a.m.—Distribution Div. dealer management clinics.

1:30 p.m.—OHI secretaries seminar.

EXHIBITORS

COMPANY	BOOTH
Akron Rubber Co.	215
Aldrich Co.	513
American Arison	507
American Mohawk	425
American Radiator & Standard Sanitary Corp.	328-330-332
Auto-Flo Corp.	737
Automatic Devices Co., Inc.	640
Bacharach Industrial Instrument Co.	302
Bell & Gossett	317-321
Boston Machine Works Co.	530-532
Bryant Mfg. Co.	406-408-410
Burnham Corp.	623-625-627-629-631
Burroughs Corp.	329-331
A. W. Cash Valve Mfg. Co.	710-712
Choldun Mfg. Co.	234
Cleveland Controls, Inc.	916
Columbia Boiler Co.	734-736
Commercial Filters Corp.	602
The Contractor	621
Bert Cowan	338
Crane Co.	524-526
Delavan Mfg. Co.	704-706
Dielectric Products, Inc.	420
Dole Valve Co.	632-634
Domestic Engineering Publications	519

Econo Products Co.	334-336
Eddington Metal Specialty Co.	509-511
Edwards Engineering Co.	307-309
Electric Furnace-Man, Inc.	409-411
Electrofile Corp.	439
Electrol Burner Mfg. Co.	816
Electronics Corp. of America	
Comb. Control Div.)	903-905
Emerson Electric Co.	407
Empire Chemical Products Co.	901
Field Control Div.	
(H. D. Conkey & Co.)	720-722
Fostoria Pressed Steel Corp.	405
Fuel Oil News	708
Fuel Oil & Oil Heat	726-728
General Controls	417-419-421
General Electric Co.	306-308
General Filters, Inc.	607-609
General Fittings	624-626
Gerwin Industries, Inc.	214
Gilbert & Barker Mfg. Co.	501-503-505
Gross Furnace Mfg. Co.	533-534-535
Gulf Oil Corp.	523-525-527

Hago Products	232
Hayward Oil Burner Corp.	431
Heat Timer	423
Heil-Quaker Corp.	612-610-608-606
Hewitt-Robins, Inc.	324
Hilti Rapid Fastening Systems, Inc.	202
Industrial Combustion, Inc.	804-806
Iron Fireman Mfg. Co.	
(Timken Silent Auto. Div.)	636-638
Jay Zee Mfg. Co.	432
Jefferson Electric Co.	619
Johnson Degree Day Systems	529
S. T. Johnson Co.	801-803-805-807
Koven & Bros., Inc.	220
Lake Chemical Co.	427-429
Manville Boiler Co., Inc.	813
Marcoil Heater Co.	528
Master Craft Supply Co., Inc.	327
Master Plumber & Heating Contractor	311
McDonnell & Miller, Inc.	418
Metal Master Corp.	521
Minneapolis-Honeywell Regulator Co.	725-727-729-731
Monarch Mfg. Works, Inc.	716-718
Monroe Calculating Machine Co., Inc.	301

The Morse Smith Morse Co.	701
Motorola Communications & Electronics	611
National-U. S. Radiator Corp.	620-622-719-721
New England Equipment Dealer	739
New England Tank Lining Co., Inc.	639
Oil Equipment Mfg. Corp.	217
OHI Insurance Trust	741-742
C. A. Olsen Mfg. Co.	314-316-415-413
Parke-Hill Chemical Corp.	815-817
Penn Controls, Inc.	313-315
Petro Div., Iron Fireman Mfg. Co.	913-915
Pullman Vacuum Cleaner Corp.	416
Quality Specialty Co., Inc.	531
Radiant Utilities	323-325
Radio Corp. of America	434-436
Ray Oil Burner Co.	917
Richmond Plumbing Fixtures	703
Scully Signal Co.	702
Shell Oil Co.	333-335
Sinclair Refining Co.	628-630
Skuttle Mfg. Co.	428-430
Slant-Fin Radiator Corp.	401-403
H. B. Smith Co.	809-811
Snips Magazine Co., Inc.	304
Socony-Mobil Oil Co., Inc.	641-740

S O S Products Co., Inc.	732
Spartan Convector Co., Inc.	604
Spencer Heater Lycoming Div. Mfg. Co.	810-812
Wm. Steiner Mfg. Co.	318-320-322
Stewart-Warner Corp.	613-615-617
Sun Oil Co.	433-435
Sundstrand Machine Tool Co.	508-510-512
Sun-Ray Burner Mfg. Corp.	502-504-506
Taco Heaters, Inc.	733-735
Texas Co.	814
Time Savings Fills, Inc.	437-438
Toridheat Div. (Cleveland Steel Products Co.)	516-518-520-522
Torrington Mfg. Co.	515-517
Tru-Seal Div. Flick Reedy Corp.	303-305
Union Electric & Mfg. Co. (Charles Rapiport Associates)	310-312
V & E Products, Inc.	724
Volcano Burner Corp.	633
Walker Mfg. & Sales Corp.	412-414
Watts Regulator Co.	326
Webster Electric Co.	514
Weil McLain Co.	422-424-426
Westinghouse Electric Corp.	635-637
White-Rodgers Electric Co.	711-709-707-705

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Anti-Corrosion, Plastic Coatings—Halstead & Mitchell Cooling Towers have many other design features that increase tower life and keep maintenance costs to a minimum. For instance, the cooling tower casings are completely protected against corrosion by separate plastic coatings of Vinsynite, Vinyl Zinc Chromate, and chlorinated rubber, after assembly. Every edge, every corner, is sealed against rust.

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